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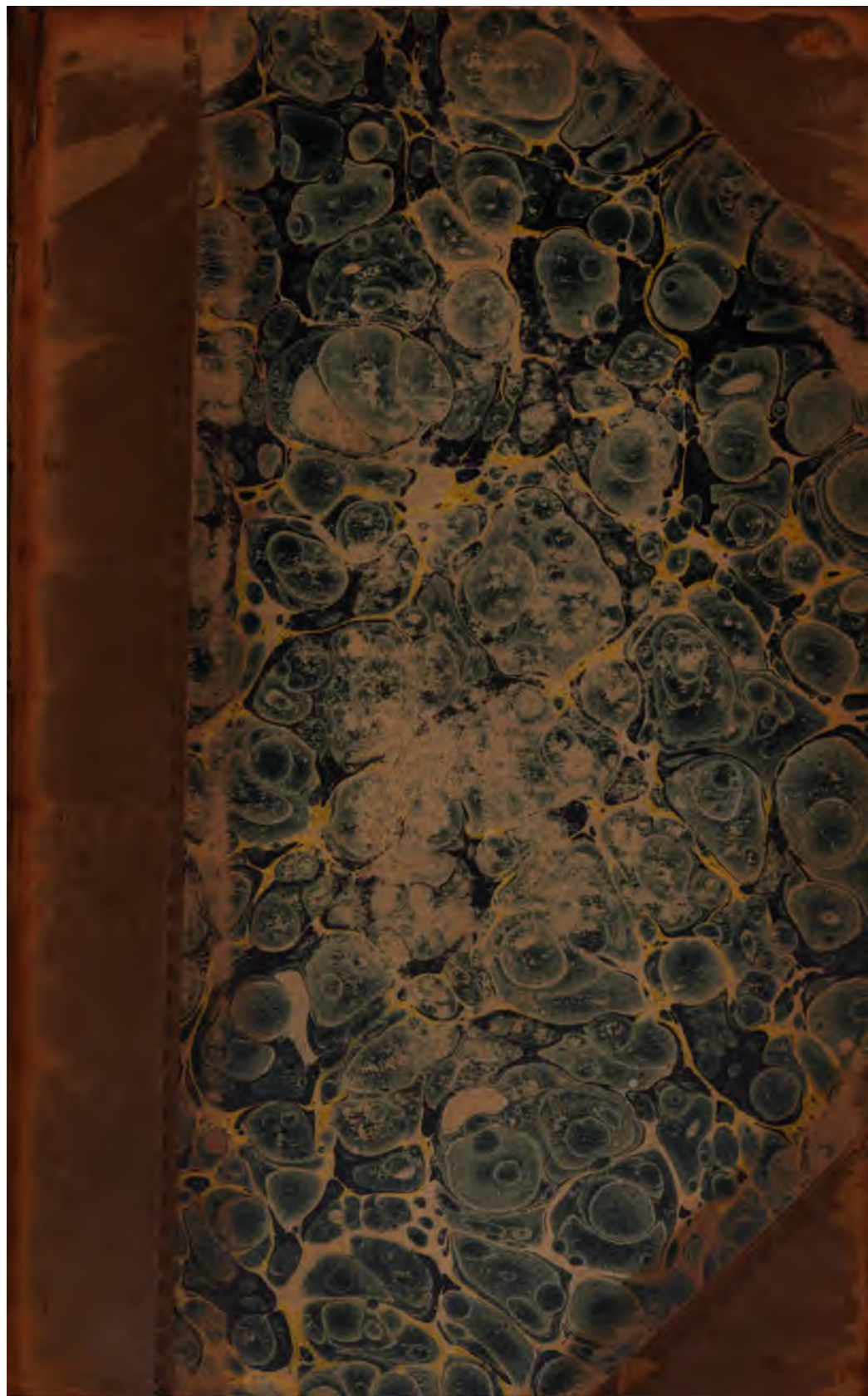
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**BOTANICAL**

**LEMENTARIES,**

**BY**

**JONATHAN STOKES, M. D.**

**VOL. I.**

**LONDON.**

**SIMPKIN AND MARSHALL,**

**AND**

**TREUTTEL & WÜRTZ.**

**1830.**





TO THE  
MEMORY OF  
W. B. JOHNSON, M. B.  
OF COXBENCH,  
NEAR DERBY,  
WHO DIED JANUARY 13, 1830,  
AGED 66.



## PREFACE TO VOL. I.

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"The sciences thus extended exceed," says a celebrated mathematician, "the faculties of an individual. Their immense sphere can be embraced only by a great literary body, which in its totality as in a vast sensorium unites all conceptions, all views, all thoughts, which feels neither the infirmities of human nature nor the decay of the senses nor old age, but ever young ever active incessantly investigates the properties of bodies, discovers the powers which lie concealed in them and presents them to man prepared for use." "Mais ainsi étendues les sciences excèdent les facultés d'un seul homme. Leur sphere immense ne peut plus être embrassée que par un grand corps littéraire qui dans son ensemble, comme dans un vaste sensorium réunisse toutes les conceptions toutes les vues, toutes les pensées; qui ne connaissant ni les infirmités humaines ni la décadence des sens et de la vieillesse, toujours jeune, toujours actif, scrute incessamment les propriétés intimes des choses naturelles, découvre les forces qui y sont cachées, et les offre enfin à la société tout élaborées, et préparées pour les applications." *Biot, operations relative to the figure of the earth, extract from in journ. of science, v. 342.*

Literary societies possess the means of pursuing many enquiries on a wider scale and for an unlimited period, which individuals cannot. Philosophers having observed the evils resulting to religion from synods and councils and to trade from corporations, seem to have been fearful of

employing a society in a philosophical enquiry, but the benefits arising from their active cooperation in their endeavours to ascertain the figure of the earth, are a demonstration that when they act in a body they do not cease to be philosophers.

Many objects of enquiry present themselves to the minds of individuals which they do not pursue from the shortness and uncertainty of life or a doubt of continued residence. Who would not wish to know how Lichens *Fuci Sertulariae* and Corals grow, but the Lichen which excites the wish grows perhaps on a distant mountain or adheres to a mass of rock too large to be portable, and if marked some geologist breaks it off with his hammer. When will some observer resident on the sea shore relate the growth of the *Fuci* which vegetate between high and low water mark. When will some zoologist take lodgings for a summer at Red Wharf bay near Beaumaris in Anglesey to observe in Ellis's aquatic microscope the growth of *Sertulariae*. If a society possessed of a garden would invite the travelling botanist to send specimens of lichens growing on rock they may be deposited in their garden and their dimensions given in their catalogue and their growth become the subject of future histories. I have often observed posts and rails in a state of decay covered with *Lichen fraxineus* and *prunastri* and have wished to know their age. When will a botanic farmer begin with his next wooden fence and mark month after month the progress of vegetation till it decays, recording the growth of its inhabitants in another "journal of a naturalist."

There is no point on which naturalists are less agreed than the nature of species and varieties; but as our Horticultural Society has purchased a garden, and our

Zoological Society a park, I hope we shall soon see our theories put in a train for decision by a series of experiments. Ehrhart divided *Fragaria vesca* of Linnaeus into 6 species. In *Rubus* he has been followed by Dr. Weihe, and Prof. Nees ab Essenbeck, and *Rosa* from 30 species in Linn. a Willd. is extended in Linn. a Sprengel to 109. Dr. Host in his synopsis had 1 species of *Ulmus*, but 9 appear in his flora. How shall we ascertain whether these diversified forms are the product of time and the elements, or whether there was originally one Rose as Scopoli conjectures *carn. i.* 355; or two or three as Louis Gerard seems to have thought, for he is of opinion that our European Roses originated from one. *Fl. Gallo. prev.* 466.

Let seeds of individual plants of the most robust of the Roses and Brambles, *Rosa canina* and *Rubus fruticosus*, the Crab, Squash Pear, *Primula grandiflora elatior* and *odorata* and *Viola odorata* be sent to Canada the Cape and New Holland. Let those who cultivate them communicate from time to time to our European societies what alterations may have been observed in the plants raised from the seeds in successiv generations, with specimens in flower and fruit, to compare with the parent plants. Let the *Viola* be surrounded by as many as possible of the 13 stemless species enumerated in Pursh, in the hope of obtaining new species or hybrids. Let the gardens of Calcutta Mauritius the West Indies and United States adopting similar views be in constant correspondence, animated by a common desire to establish principles as well as to cultivate the rarer plants and form herbariums. If the different climates produce different varieties, let them be made to impregnate each other and be impregnated by congeners, which may perhaps



produce new varieties, and unfold to us some of the operations by which the present race of Roses Brambles Apples Primulas and Violets may have been produced. No plant affords so many varieties as the apple and pear, their varieties being almost equal to the seminal individuals. What are the causes of so many varieties, pollen? soil? climate? grafting? Plants may be increased in size by grafting. The crimson variety of *Rosa semperflorens* (Chinese Rose) which is a dwarf, probably made so by the Chinese gardeners, rises to the top of the 2nd story of the house at Pitmaston near Worcester, as tall as an accompanying plant, of the pink variety, in consequence, as Mr. Williams informed me, of being grafted on *Rosa moschata*. I have since seen the 2 varieties growing to the same height. Let it be grafted on the pink variety and *R. canina*.

Plants may be rendered dwarf by grafting. Pear trees grafted on quince stocks are smaller. A ringd branch of the Winter Bergamot pear blossoms earlier and loses its leaves sooner than the rest of the branches, and its fruit is smaller. Let a graft of such a branch be inserted into a free stock and another into a quince stock. By the latter method, dwarf fruit trees are probably produced. Let the pink variety of *Rosa semperflorens* be grafted on the crimson. Mad. de Genlis in her life relates that in Suabia she saw roses grafted on apple trees. Let the apple tree be grafted on the rose.

If the seeds of the apples of one tree were sown in different soils and distant climates we may possibly learn what changes soil and climate produce. A pippin of a Nonpareil sown by Mr. Malkin of Chesterfield, on gritstone 15 years ago has produced a large shining rosy cheekd apple weighing to 4½oz. by no means meriting the title of an eating apple. What would have been the

produce of the other pippins sown in Herefordshire Devonshire Ireland Normandy and New England. Let the trial be made, but let the seeds be the produce of flowers coverd with gauze to prevent the access of insects which might convey to the stigmata the pollen of some other variety, which may have been the case in Mr. Malkins experiment.

In experiments where seeds are sown let the soil be previously exposed to the heat of an oven that all seeds or portions of roots contained in it may be deprived of life, and the plants must be ticketted with pieces of lead stampd with arabic numerals in a regular series, enterd into a journal, and each metallic label fastend to the stem of the plant by brass wire. Every label in a garden should have a distinct number. If a plant dies its successor should have a new label, and in the book of numberd labels it should be stated whence the new plant was obtained.

Another series of experiments is wanted to ascertain the best method of restoring to fertility a precious variety of fruit become unproductiv. In my early youth I tasted Golden pippin cider from one of the largest casks in a cider warehouse, preferable to all the rest, but now the fruit is said to be with difficulty obtaind even for the desert, and Squash perry more grateful to my palate than Champagne is said to be scarcely known beyond the county where it is produced. Mr. Knight considers varieties as individuals whose duration is limited, (but what is the extreme extent of the life of a bulbousrooted plant?) and says that they are approaching to their end, and Mr. W. Salisbury that their sterility is occasiond by neglect. I have attributed it to grafting, alleging that the Codlin, one of the oldest of our apples, propagated by

suckers, and our grapes by cuttings are as productiv and well tasted as ever, but we have no complaints of degeneracy in peaches nectarins apricots plums and eatable pears, though all grafted, perhaps because they are under the care of gardeners, whereas the Squash pear Red streak and Golden pippin apples ceased to afford a plentiful supply of cider and perry under the management of Herefordshire and Gloucestershire orchadists who stil allow mistletoe and lichens to grow undisturbd on the branches of unpruned trees. The fine perry, called Tainton Squash is however stil sold by the Gloucester cider merchants, the bottled 3 years old at about a pound a doz. and the trees which produce it may be seen I am told at Tainton about half way between Gloucester and May hill, on the road to Newent, probably on red clay. Good new cider made in the same place sold in 1829 at 1s a gallon. The greater part of the Champagne drunk in England is said to be manufacturd from it by French wine merchants.

Some fruit trees as the Winesour plum are generally barren, but on particular soils abundantly prolific, as at Sherborn in the west riding of Yorkshire on magnesian limestone, and on argillaceous strata at the foot of chalk in the east riding. Let the orchards where these Golden pippins Redstreak apples and Squash pears grow be carefully examind, and if in grass let the soil be ploughed and kept in tillage with a succession of manures such as dung lime and bone dust, and let grafts be inserted on stocks raised from their own pippins and on varieties most nearly allied to them. Let the Squash be grafted on every kind of perry pear and the Golden pippin on every kind of cider apple and on a crabstock, on which Mr. Knowlton informs me it acquires red cheeks. If these expedients fail let them be propagated by layers, and planted in the

ricer countries of Herefordshire Worcestershire Gloucestershire Somersetshire Devonshire Normandy Ireland and the United States. The climat of the last is so favourable to the peach of Persia that their trees are raised from the fruit, and grafting little if at all practised. If countries so distant are equally favourable to the peach, others may perhaps prove as propitious to the Squash pear Golden pippin and Red streak apples as Herefordshire and Gloucestershire once were. Mr. Knowlton is of opinion that the sterility of some of these varieties is owing to their not having been grafted before the trees became diseased.

Let the plants peculiar to the islands of the Atlantic be kept in greenhouses and stoves with plants of the 3 continents of analogous genera, and also transplanted into those continents and the islands of the Pacific, and their offspring carefully examined in the hope that new species or varieties may be produced. Seeds afforded by plants cultivated in hothouses and greenhouses should be carefully sown, and their offspring compared with the parent plants. No plants growing in the pots or soil should be pulled up as weeds unless recognised by the gardener. There is a plant in Darley garden considered as a hybrid, but if it should produce seeds in the climate where the genus grows spontaneously, it may perhaps vindicate its claim to the title of species.

Some vegetable races which we call species have lost their power of seminal reproduction, as several *Alliums* and *Menthae*, and *Triticum repens*. If the mints and garlies are not hybrid productions, let us hope that the skil of the experimental gardener may restore to them their original fertility by destroying their bulbs and confining their roots, in which last way Tournefort tells us he succeeded with *Vinca major* figured in fruit in *inst. t. 45*.

Boerhaave in the Leyden garden confined all the rampant creepers in pots and if his successors have continued the practice it will be desirable to know if what were barren have become fertile. If these means do not succeed let us remove them to other climats, which may perhaps prove to be their birth place, for the garlicks and mints with the domestic animals may have accompanied man in his migration from warmer climes.

Many questions of importance in this enquiry may be best solved in the gardens of individuals who cultivate few plants. Let the Nut and Filberd be planted close together that they may intermingle branches, let the spikes of one be destroyed one year and those of the other another year and let the North Americans make the same experiments with the Filberd and their *Corylus rostrata*. Let an arboreous European *Salix* of contemporaneous florescence, be planted near every tree of *Salix babylonica*, and let dioecious trees be planted close to analagous plants of the opposit sex, *Aucuba japonica* being accompanied by some congener of the male sex. Seeds of *Salix* and *Populus* as soon as their capsules expand must be sown in pots and carefully watched and the soil under all these trees regularly waterd during the season of fructescence. Let the cultivator fix upon some species of *Rosa* of a decidedly distinct or very ambiguous character such as *arvensis canina* or *villosa*, cover a flowering branch with a gauze bag to exclude insects, sow the seeds and compare the progress of its offspring in the same situation with the parent plant, transplanting others into the most elevated situation the neighbourhood may afford, preserving specimens of each years growth, and if he reside where different soils such as red ground limestone gritstone and schistus are contiguous let plants be cultivated in each.

Let mules be bred between *Andromeda* and *Erica* and between *Erica vulgaris* and the other *Ericas*, between *Antirrhinum Linaria* and its 5 spurred variety, between *Antirrhinum Linaria* and *A. majus*, to ascertain whether nature pays the same regard to the number of the divisions of a capsule and appendages of a corolla as the nomenclators.

Many of these questions have possibly been solved by the cultivators of *Roses* and *Pelargoniums*, and the *Lancashire weavers*, but when gain and prizes instead of the love of truth or glory are the incitements to action discoveries are concealed and die with their inventor.

Our herbariums and cabinets of zoology are very imperfect. Every one who begins to collect plants should resolve to seize every opportunity of gathering a specimen of each plant in fruit as well as flower and also in its first leaf, and if the fruit is of such a nature as to be inadmissible to an herbarium to place it in a seminarium of as easy access as possible. Circumstances never led me to consult that of the *Banksian cabinet* but the works of the *Gaertners* prove its riches. It ought to be kept in the same apartment with the plants.

Specimens of phaenogamous plants ferns and fungi should be of a folio size those of *Fungi* in quarto and mosses in 8vo. In drying them they may be moderately pressed between pink blotting paper by means of large books laid upon them. Hard pressure makes better pictures but renders them less useful to the student. In travelling I content myself with such whitybrown or cap paper as the country grocers furnish. At home I dry the papers on a clothes horse before a raked fire, but in an inn I spread them on chairs and tables and on the floor, in winter while present in the room hanging them on a fender before a fire. If numerous and the weather



warm I lay each paper with a specimen upon it on the floor and let them remain till they begin to fade and then lay them one upon another again. If travelling in any kind of carriage I tie them up between pasteboards and lay them under the cushions. Small specimens I put into a pocket book and find such better preservd than any other. The seeds and when small the seedvessels, wrapped in paper should accompany the dried specimen, the place and time where and when gatherd being subjoined to the name, with a number corresponding to another enterd into a catalogue of the herbarium.

The specimens of herbariums intended for public inspection, such as those of Linnaeus and Banks, are generally pasted on paper with corrosiv sublimate in the paste, but if the collector intends to use them for the purpose of description or future illustration he will keep them loose, that they may be examind on both sides, and in the microscope. I have been in the habit of tying them between pasteboards in bundles, and have been so long free from the depredations of the brown dermestes, that I attribute my security to pressure. It might be preferable perhaps to keep them in oblong boxes with one side or end falling down by a hinge, pressing them down by a plate of cast iron or stone. Bankss herbarium, if I mistake not, is so constructed that in case of fire it may be readily transported. But our public herbariums should be kept in incombustible buildings, which I fear the British museum and the house lately occupied by Banks in Soho square which contains the Linnaean herbarium, are not. The Italians less liable to fire than we are build incombustible houses. I cannot help expressing a wish that the proprietors of solitary houses containing collections of books coins statues or paintings should be compell'd by act of parliament to hold in readiness the means of

extinguishing fires. Chatsworth is well defended by buckets engines and running water within its walls. The engines should be played on the festival of the saint to whom the parish church is dedicated.

All subjects of natural history should if possible be described while recent and by daylight, particularly the colour of the corolla and if the collector be an artist a coloured sketch should be taken, as the colour of many flowers changes during and after drying, particularly blues, some changing from reddish purple to blue as *Campanula patula*. Coloured outlines of many Fungi should accompany the dried specimens to enable the collector more readily to recognise them. I exhort all naturalists to use the best simple microscopes the opticians of the day can furnish, as I too frequently feel in consulting even good authors that they depended on their eyesight, and that sometimes imperfect. The microscopes I have used are Wilsons adapted to Elliss aquatic microscope, but I doubt not that improvements may be found in the London shops. Mr. Parker of the sand pits in Birmingham has made me a circular fountain with upright sides of brass which I find much superior to the watch glass of Elliss. Needles stuck in the feather ends of quills are useful in separating minute objects, as are pieces of strong flat clear glass to press objects between to discover their texture. A naturalist should always study at a south window and in towns not forget to have it frequently cleaned.

Every naturalist, indeed every one who can write, should keep a journal, on paper folded in an 8vo or 12mo form, capable of being bound up, written on one side, leaving the opposit page open for corrections and references. Each article should be numbered in a regular

series to which at any time an index may be adapted. This index may be continued from time to time, but to prevent unnecessary transcription a moveable index is preferable, composed of distinct labels, arranged alphabetically in books. Full descriptions of subjects of natural history, cases of clients or patients, diseases and remedies may be on distinct papers and arranged alphabetically.

Every naturalist should rise with the sun, making as much use as possible of the light of day and not travelling after dusk, especially in Wales where turnpike roads barely admitting 2 carriages, are cut out of the sides of hills with an unguarded precipice on one side, the surface of the road sloping from the hillside to the brink of the precipice, as between Rhayader and Aberystwith. In France and Ireland the maximum of ascent is limited, but in the turnpike road from Bala to Llangunog over the Berwyn mountains the steepness of the ascent is frightful. In Utopia such things are not permitted and he who travels in the dark in a carriage without lights is liable to forfeit the value of the carriage, and the commissioners of roads who neglect to provide for the safety of those who travel upon them, are assessed double in the poor rates.

In ascending mountains unless in extremely fine weather it is prudent to take a guide as mists sometimes unexpectedly envelop the top and render the descent hazardous. A long staff armed with a short spike of iron is very useful in climbing mountains, and in case of great exhaustion lying down horizontally as recommended by the experienced Saussure will be found very beneficial. Cold water is the best application to bruises, and is efficacious even though some time may have elapsed.

He who travels on horseback may be kept perfectly dry if covered by a great coat of light cloth made water-proof by the following process.

Take sugar of lead 2 oz. Allum lb $\frac{1}{2}$  Isinglass 1 oz. Dissolve and strain each solution separatly and pour them all at the same moment into a gallon of rain water, into which immediately plunge the cloth turning it over and over til saturated. Take it out without pressure and hang it up fully spread out to drop til perfectly dry without fire or sun. This is for seven yards of narrow cloth which will be reduced  $\frac{1}{2}$  yard.

The great coat must have 2 additional flaps in front, made to button, to cover the pommel of the saddle and wide side pockets for 2 vasculums, and if it is desirable to carry dried plants an inside pocket of shalloon may be contrived to hold a pasteboard case. If the weather be oppressively hot the rider may disengage himself from his great coat crossing the arms before him with a single knot, without any inconvenience, if care be taken that the skirts are not wetted in passing streams of water, and if geologist or mineralogist he will be soon sensible of the comfort of relieving his shoulders from 2 loaded pockets of stones. Hats and boots are sold which are water proof, and there are receipts for making boots water proof, or on the approach of wet weather they may be greased with tallow and then covered with blacking.

Whenever the sheets or bed are suspected to be damp it is prudent to sleep between the blankets.

As several distinguisht naturalists have lost their lives in hot climates it is much to be wishd that M. Afzelius who resided at Sierra Leone would favour the world with directions how best to guard against them. Arabia and Congo have proved so fatal to northern naturalists that

to propose remedies seems hopeless. Perhaps washing the whole surface night and morning with salt and water may be the best safeguard, with a siesta at noon. 1½ ounce or 3 tablespoonfuls of seawater containing 9 grains of residuum, I find sufficient. If such ablutions shall be found to preserve or restore health, long journeys to the sea may be dispensed with. I have no opportunity of trying it as a preservativ against the fevers of the fenny counties as their effluvia have not extended to Derbyshire or Worcestershire since 1784 but I should recommend it to all exposed to marsh miasmata or the malaria of Italy. These ablutions as well as the daily use of seawater are accompanied by thirst which should be relieved by cool watery and not by warm spirituous and fermented liquors. If used as a cold bath the quantity of liquid must be more than sufficient to wet the surface.

The affection of the stomach, which too often terminates in the black vomit, should be treated as an incipient gastritis by mercurial friction calomel blisters local and sometimes general bleeding, employing no purgatives but enemata of turpentine and Ol. Crotonis. I should rejoice to find sea water with tincture of Morphia and Nicotiana, unguent of Iodine and the more useful of Vauquelins extracts in a national pharmacopoeia by our 3 colleges.

Hardy plants cultivated in botanic gardens would not so frequently disappear if more attention were paid to soil and situation in their formation. The greater part are under the walls of a university for the convenience of a professor and his pupils. A botanic garden should be placed on a hill gently sloping to the south turning laterally round to the west, and terminating below in a natural or artificial morass a pool and a running

stream, sheltered from the north and east by a wood or plantation lowering down southwards into a copse, bordered by a portion of land similar to that of rocky heaths and commons. A certain breadth of the soil of the open ground from the top to the bottom of the hill should be removed and its place filled by stripes of other soils. The soils most generally acceptable to plants are loam, sandy gravel, red clay, decayed basalt encrinuric limestone gritstone schistus, lias, and magnesian limestone. Peat mud and sand are the abode of many plants. Each plant should occupy a place as nearly similar as may be to that in which it was found growing, and not be planted according to a natural or artificial system, which are best displayed on paper and in herbariums. These adventitious soils in a course of years may demand renewal, and the maritum plants in sand occasional sprinklings of common salt or rather perhaps seawater. When the native soil of a species is uncertain and it does not flourish and produce seeds plants of it must be set in different soils and the event recorded. The botanist who describes the plant found in its native place of growth should not omit to mention in what soil it grew, and he who describes a plant found in a garden should tell us if known in what soil it best flourishes. Millers dictionary is the best work on this subject, but some of my gardening friends recommend Graeffe as a manual.

The exotics in the stoves of botanic gardens at European courts, should be arranged geographically, that the ambassadors of different nations may have an opportunity of observing what an interest Europe takes in the productions of every climate. If the physicians surgeons and chaplains attached to foreign embassies were at the same time good naturalists they might inspire or forward



a taste for the study of nature. Botany is perhaps the key destined to unlock the treasures of Africa, to be explored perhaps by Mussulmans educated in a London university.

We have descriptions of the rarer plants of a garden as the *Hortus elthamensis* of Dillenius, and *Hortus upsaliensis* of Linnaeus, catalogues of gardens consisting of the generic and specific characters of plants such as the *Hortus kewensis* and Boerhaaves index, and we have one by a gardener in Millers dictionary, but the *Hortus* or *Flora* or compound of both, which I wish to see, must be the work of one who delights in the contemplation of nature, who is perhaps more of a cultivator than a botanist, who living in his garden and the adjoining fields, and rising with the sun is more intent on watching the unfolding of buds, the sleep of leaves, the vigils of flowers, the dissemination and germination of seeds, and the changes of colour in the leaves in autumnal decay, than in dissecting flowers fruits and seeds to ascertain the relation in which one plant stands with regard to others. The circumstances described in such a *Hortus* ought to form a part of complete descriptions, but these are generally written when the plant in full beauty attracts the attention of the botanist, eager to comprehend its nature by a minute examination of its parts. This *Hortus* will contain those circumstances in the history of plants which the professed botanist is in danger of overlooking. It will record the germination of the seed, the form of the seminal leaves, the colour of the early shoots of *Paeonia* and *Tradescantia*, the progress of the stem and foliage of *Lilium album* which begin to fade before the flowers are in full beauty, the annual changes of the bulbous rooted plants, the day

when the buds burst into leaf, and the leaves of the evergreen fall almost unnoticed, and the hours when the antheridia and corollae expand and close, when the antherae shed their pollen, when the germen is distended to fullness, when the seedvessel disperses its seeds, when the leaves change colour in decay, when they finally fall, when the annual becomes lifeless, and the herbaceous stem of the perennial and biennial and the shrubby biennial stem of *Rubus idaeus* alike die down to the root.

Cabinets of zoölogy should contain not only the skins but the skeleton and alimentary canal inflated or in spirits, the different sexes, and in those of birds the 1st 2nd in some species the 3rd plumage of each sex.

The skin should be preservd from the depredations of moths, by applying to the inside a solution of corrosiv sublimat by a hair pencil, folding the sides of the skin together, in birds placing one wing closed on the side of the trunk and the other wing expanded as if flying. Let those who have time and ability imitate Miss Meyrick and Mr. Waterton in their exquisit preparations in living attitudes. Cabinets of insects should contain the eggs, the caterpillars, the dung of some, the cocoon, the chrysalis, the male the female and the neuters. In conchology the inhabitant of each shell should accompany it in spirits, and in the class of intestinal vermes the worm of each animal should be preservd in a separate phial. Each specimen should be labelld with a different number and enterd into a catalogue in which the place and time when and where found should be recorded. Such a cabinet will furnish us with enlarged specific characters which may prove even superior to those of plants. The best specific characters are the most certain, not the

shortest, and the investigating naturalist often receives with gratitude illumination from Scopoli Michaux and Nilsson amid the obscurity of Linnaean brevity. The few entomologists I have conversed with have appeared well satisfied with their leaders and the systems of the day, but when I have had occasion to investigate an insect their specific characters have appeared very inferior to those of the botanist. The true entomologist will not confine himself to a cabinet with Fabricius, but study the animal in its various forms from the egg to the perfect insect with Godaert Swammerdam and Sepp, and his specific characters will not be contrasted with those of species of which we know nothing except their last stage, but with those whose entire history we are more or less acquainted with.

If there are no systems for the investigation of caterpillars and crystalises there ought to be.

In Ornithology I have long felt the want of two systems one of *investigation* consisting of the characters of birds as they present themselves to us without the information that observation and anatomy may furnish; the other the system of *arrangement* founded on an examination of structure. The following is a specimen of the plan proposed,

1. *System of investigation.*

1. *Falco*. Supra atro plumbeus, subtus ferrugineo albido fuscoque mixtus, fasciis ferrugineis cuspidatis.—Upper side atrous leadcoloured; under side ferruginous whitish and brown mixd, with cuspidate ferruginous fasciae. *Falco Nisus male* which see in the system of arrangement.

2. *Falco*. Supra rufescenti-fusca, subtus fusco albido ferrugineoque mixta, fasciis fuscis cuspidatis macu-

lisque cordatis.—Upper side rufescent brown; under side brown whitish and ferruginous mixd, with brown cuspidate fasciae and cordate spots. *Falco Nisus female* which see in the system of arrangement.

## 2. *System of arrangement.*

1. *FALCO Nisus*. Mas supra atro-plumbeus subtus al-bido ferrugineo mixtus, fasciis cuspidatis; femina supra fusca, subtus albido fusco mixta, fasciis caspidatis maculisque cordatis.—Male atrous leadcoloured on the upper side, under side a mixture of whitish and ferruginous with cuspidate fasciae; female brown on the upper side, a mixture of whitish and brown with cuspidate fasciae and cordate spots on the under side.

I cannot quit the subject of ornithology without stating that Adanson in 1783, and M. Afzelius in 1793, informd me that they saw *Hirundo rustica*, the former near the colony on the river Senegal and the latter at Sierra Leone, in that time of the year when it is absent from Europe, Adanson desiring me to let Barrington know that l'Hirondelle was the French name for *Hirundo rustica*. Mr. Tudsbury of Chesterfield, who resided at Sierra Leone and Rio Nunez from 1821 to 1828 as agent to a mercantile house in London, informs me with English specimens of *H. rustica urbica* and *Apus* before him, that it is seen all the year in the neighbourhood of Rio Nunez and Sierra Leone, but that they are less numerous in the rainy season from June to Sept. They inhabit rocks from 80 to 90 miles from the coast, flying about rivers and lakes. He never observed any on the sea shore. Neither did he see any nests or eggs. The natives never shoot them, but they are pursued by hawks. Thunberg saw them in Sept. and Oct. building

nests soon after their arrival in Caffraria, whence he says they migrate but whither the people of the country are unable to ascertain. From the above I conclude that it is an inhabitant of both extremities of the old continent, breeding in the temperat regions, from June to Aug. in Europe, and in Sept. and Oct. at the southern extremity of Africa, both sets migrating to the equator in the winters of the countries where they breed, their migrations corresponding with those of the thrushes of Scandinavia.

A dead specimen of *Hirundo Apus* was found by Thunberg in a cave in Caffraria on the 28th of Sept. but it was not seen by Mr. Tudsbury at Rio Nunez, whence I conclude that this species, more impatient of cold, makes the more central parts of Africa its winter abode. Mr. Tudsbury appeared to be acquainted with *Hirundo senegalensis* as characterised in Linn. a Gmel. i. 1021.

I cannot terminate this digression without recommending to my fellow students Nilsson *ornithologia suecica*. Tomi 2. 8vo 1821, as a most masterly work, Retzii *fauna* as a *suecica*, 8vo 1800, sequel to Linnaeuss Turtons *brit. fauna* 16mo, as a manual; and Stewarts *elements of natural history*, 2 vols 8vo 1801, as a compendium of zoology. These 2 last authors have been as unjust to their fame as Gmelin in his edition of Linn. syst. by omitting to distinguish what they had themselves seen, but I hope those who undertake the next edition of the syst. nat. will tread in the steps of Willdenow distinguishing by marks what they have seen alive preservd figurd or described.

The members and patrons of literary societies would do well to consider whether they avail themselves of all

the opportunities they possess of promoting knowledge. Their publications become so voluminous and so expensive from their form and wasteful mode of printing, that they are seldom found complete except in the public libraries of capitals and universities. Who besides Linnaeus quotes the memoirs of the academy of sciences of Paris for the year 1710 for the first application to practice of the sexual system by the excellent Vaillant. Had the academy published his observations as a sequel to the institutions of Tournefort the sexual system would probably have been unfolded at large to the world long before the appearance of the *Flora lapponica* in 1737. To the bulk of practical botanists it may be said to be a buried treasure, while the 8vos of Linnaeus scattered over the globe, make their way into the libraries of village naturalists. Maton and Racketts british conchology occupying 268 quarto pages of vols. 7 and 8 of Linnaean transactions would have made more converts to that branch of zoology in a distinct portable work, and the reader would have had the advantage of an index in which the volumes of the society are deficient. The advocates of things as they are may allege that we have an abridgement of the phil. trans. but botanical descriptions do not bear abridgement.

The evil here complained of has been somewhat diminished by the formation of the Antiquarian Wernerian Horticultural Astronomical Medico-botanical Geological Zoological Literary and Asiatic societies and would be still further lessened if each of these societies would republish all the papers in the philosophical transactions which belong to their respective departments. But on the other hand it has been augmented by the consolidation of societies in the Institute of France, in the transactions



of Scotland Ireland Manchester Cambridge and Bombay, to say nothing of those of our transatlantic brethren published at Philadelphia and Boston.

The French have an edition of the memoirs of the academy of sciences in 12mo, but the most useful plan for the diffusion of the knowledge contained in these works would be a republication of the papers in 8vo in distinct collections on natural philosophy chemistry mineralogy geology botany zoology antiquities &c. to be separately subscribed for, only one volume of each collection coming out at a time.

If a rich philanthropist were to ask me how he could best confer benefits on practical botanists, I should reply by reprinting in 8vo the letter-press of the figurers of plants such as the Jacquins L'Heritier Linneaus the son Desfontaines Rotboll Roxburgh Ruis and Pavon Schmidel Schriber, Vahl Willdenow, Fl. lond. and the other periodical works. The reimpressions of Pall. ross. and Jacq. amer. have made a beginning, and if the German booksellers would complete the work they would I doubt not be amply remunerated.

The Germans having no national repository publish rather in distinct works, in consequence of which their discoveries are more widely and usefully and perhaps more speedily made known, the titles appearing in the journals and half yearly catalogues of Leipsic fair, where as the contents of the different literary societies are now seldom if ever given in our scientific journals, as they used to be in the Monthly and Analytical Reviews while under the conduct of Griffith and Johnson, and that good practice has not been revived in the otherwise excellent work the Bulletin des sciences.

A museum ought to form a part of the establishment of every nobleman and wealthy commoner, of the palaces of our bishops, of our cathedrals and academies of catholics and dissenters, as receptacles of books manuscripts coins inscriptions minerals plants animals, in a word of every thing that tends to illustrate the history of nature and of man. A chaplain or curator should be ready to facilitate the pursuits of those who are desirous of knowledge. The British museum is the best place for the study of natural history for those who are obliged by other causes to reside in town, but London is too dear a place for a mere student, on which account it ought not to have been chosen as the seat of our 2 new universities.

If the admirers of Willdenow unacquainted with German are thankful for the translation of the preface to the supplement to the Enumeratio of which I obtained a literal version from a friend, I ask them in return to promote English versions of German prefaces to Latin works such as those of Suter ab Hegetschweiler and Spenner, and of botanic travels such as those of Linnaeus and Loeffling.

*Chesterfield, 7th April, 1830.*



## EXPLANATION OF BOTANICAL TERMS.

1. *Accumbens*. Accumbent. *Cotyledons*. When the margins of the cotyledons lie against the rostellum. See *Draba*. *Hort. kew. ed. II.* iv. 91. In *Raphanus Raphanistrum*. *L.* *Raphanistrum Lampsana*. *Gaertn.* ii. 301. *t.* 143. *f.* *F.*  
*Rostellum*. In most of the *Papilionaceae* and *Melilotus officinalis*, but in *M. messanensis* and *italica*. *Obs.* 6488 incumbent. The same variations are found in the class *Tetradynamia*, where Mr. Brown has ventured to make these circumstances generic distinctions.
2. *Acerosus*. Chaffy. *Leaf*. Linear, permanent. *L. am.* n. 170, as in *Pinus Juniperus* and *Taxus*. *Phil. bot.* 42. *t.* 8. *f.* 105, *cop. in Bot. arr. t.* 9. *f.* 3. *e.* In form of a needle, subulate, mostly with an articulation at the base near its insertion into the branch, as in the *Coniferae*. *Phil. bot.* 219.—A useless term.
3. *Acetabuliformis*. Acetabulate. Like a shallow saucer with incurvd sides. *From Sal. R. in lin. tr.* v. 136. *t.* 5. *f.* 4.
4. *Acicularis*. Acicular. *Prickle*. Needleshaped. *Michaux* i. 295. n. 1. Terete and tapering gradually upwards. Differs from fusiform only in size.
5. *Acinaciformis*. Scymetarshaped. *Leaf*. Compressd fleshy, one margin convex and thin, the other straighter and thicker, as in some species of *Mesembryanthes*. *Phil. bot.* 46. *t.* 1. *f.* 56; *am.* n. 271.  
*Seedvessel*. When compressd like a knife, one of the longitudinal angles being obtuse and the other acute, as in (the leaves of) *Mesembryanthes acinaciformis*. *Phil. bot.* 224.
6. *Aculeatus*. Prickly. *Leaf*. When stiff pungent mucrones are scatterd over the surface. *Phil. bot.* 45.  
*Trunk. Leaf. Petiole*. Armd with prickles. *L. am.* n. 72. 245. 321.

7. *Aculeus*. Prickle. A sharp point inserted only into the bark or rind; as in *Rosa*, *Rubus*, *Ribes* *Grossularia*, and *Berberis*. *Phil. bot.* 50. t. 5. f. 122, 123, *cop. in Bot. arr.* t. 10. f. 2. A pungent mucro inserted into the bark. *L. am. n.* 380, as in *Astragalus* *Tragacantha*, *Volkameria* *Pisonia* *Hugonia* *Caesalpinia* *Mimosa* *Parkinsonia* *Capparis* *Erythrina* *Robinia* *Solanum* *Cleome* *Smilax* *Convolvulus* *Aralia* *Duranta* *Drypis* *Euphorbia* *Tragopogon*. *Phil. bot.* 110.
8. *Acumen*. An acuminate apex as in *Cotyledon orbiculata*. *Hort. kew.* ii. 106.
9. *Acuminatus*. Acuminate. *Leaf*. Terminated by a subulate apex. *L. am. n.* 211. *Phil. bot.* 44. t. 1. f. 42, *cop. in Bot. arr.* t. 7. f. 41.  
*Calyx*. As in *Hyoscyamus*. *Phil. bot.* 63.
10. *Acutangulus*. Acuteangular. *Trunk*. With acute angles. *L. am. n.* 51.
11. *Acutus*. Acute. *Leaf*. Terminated by an acute angle. *Phil. bot.* 44. t. 1. f. 41, *cop. in Bot. arr.* t. 7. f. 40; *am. n.* 210.  
*Calyx*. As in *Primula* and *Androsace* meaning the points. *Phil. bot.* 63.
12. *Adnatus*. Adnate. *Leaf*. *Petiole*. *Stipula*. The face growing to the base of the branch. *L. am. n.* 151. 312. 336.  
*Stipulae*. (Growing to the petiole.) As in *Rosa* *Rubus* *Potentilla* *Comarum* *Melianthus*. *Phil. bot.* 108.
13. *Adpressus*. Adpressd. *Leaf*. When the disc of the leaf (lies close to or) is near to the stem (or branch.) *Phil. bot.* 49.  
*Peduncle*. *L. am.* 130. 420.
14. *Adversus*. Adverse. *Leaf*. The upper surface turnd to the south, not to the zenith. *L. am. n.* 140. When the surface of a leaf is turnd not to the zenith but to the southern quarter of the heavens, as in *Amomum*. *Quod latus non cælo sed meridiei obvertit*. *Phil. bot.* 49.
15. *Adscendens*. Ascending. *Trunk*. *Peduncle*. Bowed upwards. *L. am. n.* 33.  
*Flower*. As in the plants of the order *Gymnospermia* of the class *Didynamia*. *Phil. bot.* 61.

16. *Aequabilis*. Equable. Of equal thickness or breadth throughout.
17. *Aequalis*. Equal. *Corolla*. When the parts are similar in figure and equal in size and proportion. *Phil. bot.* 223.  
*Calyx*. As in *Primula*. *Phil. bot.* 64, in *Lychnis* (and most flowers).
18. *Aequans*. Equalling. Reaching as far as another part, as in *Iris virginica*. *Willd. enum.* i. 65. n. 18.
19. *Aggregatus*. Aggregate. *Flower*. The receptacle dilated, and the flowers on peduncles, as in *Scabiosa Knautia Dipsacus Cephalanthus Globularia Leucadendron Protea Brunia Barreria Statice*. *Phil. bot.* 76:  
*Berry*. As in *Adonis capensis*. *Phil. bot.* 75.
20. *Air vessels* spiral, white. In *Corylus Avellana* lying in longitudinal stripes between the tunic and indusium. *Obs.* 6938, in *Olea europaea* lying between the tunic and perisperm. *Obs.* 7982, in *Quercus Robur*, lying between the 2 laminae of the kernel, the spires suddenly contracting on being wetted. *Obs.* 6726, and in the tunic of *Chrysophyllum Cainito*. *Obs.* 10081.
21. *Ala*. Wing. *Seedvessel*. As in *Acer Fraxinus Isatis Begonia Haematoxylum Ulmus Ptelea Dioscorea*. *Phil. bot.*  
*Seed*. A membrane fixed to a seed by means of which it is conveyed to a distance. *Phil. bot.* 54, as in *Pinus Liriodendrum Betula alba, Plumeria Bignonia Conocarpus Anethum Artedia Hesperis Corispermum Thalictrum*. *Phil. bot.* 86 and *Agapanthus umbellatus*. *Obs.* 2625.
22. *Alatus*. Winged. *Petiole*. The sides bordered with a membrane, as in *Citrus Aurantium* and *Hedysarum triquetrum*. *Phil. bot.* 218. Widened at the sides. *L. am.* n. 300.
23. *Albus*. White. The corollae of *Pisum sativum*, *Oxalis Acetosella*, *Datura Stramonium*, (and of the radius of) *Bellis minor*. *Phil. bot.* 243.—The corollae of the radius of *Calendula pluvialis* are thought by one to be whiter than the corolla of *Lilium album*, which is probably owing to the opacity of those of *Calendula*.
24. *Alternation*. Parts of different kinds generally alternating in their insertion, as in calyx and corolla, corolla

- and stamina. But in *Epimedium alpinum*. *Obs.* 10596, they are opposit, the phylla petals nectaria and stamina being placed in lines one behind the other.
25. *Alternus*. Alternat. *Leaves*. Inserted in gradation one above another, (generally on different sides of a stem or branch.) *Phil. bot.* 48. t. 3. f. 104, *cop. in Bot. arr.* t. 9. f. 8. d.  
*Branches*. Inserted into the stem in gradation one above another. *L. am.* n. 94.  
*Leaves. Peduncle*. Inserted into a branch in gradation one above another. *L. am.* n. 113. 413.
26. *Alutaceus*. Alutaceous. Of the texture of lambskin.
27. *Amentaceus*. Amentaceous. *Flower*. A filiform receptacle beset with amentaceous scales, as in *Xanthium* *Ambrosia* *Parthenium* *Iva* *Betula* *Salix* *Populus* *Corylus* *Carpinus* *Juglans* *Fagus* *Quercus* *Liquidambar* *Cynomorium* *Ficus* *Dorstenia* *Parietaria* *Urtica* *Pinus* *Cupressus* *Thula* *Juniperus* *Taxus* *Ephedra*. *Phil. bot.* 77.
28. *Amentum*. A calyx formed of a paleaceous budlike common receptacle. *Phil. bot.* 52. t. 7. f. 137, *cop. in Bot. arr.* t. 6. f. 12. A term which Linnæus has adopted in compliance with ancient usage, but it does not appear to me to differ from a spike. It is generally applied to the spikes of male and female flowers.
29. *Amplexicaulis*. Amplexicaul. *Leaf*. When the base of a leaf closes transversely on the sides of the stem. *Phil. bot.* 49. t. 3. f. 96, *cop. in Bot. arr.* t. 9. f. 4. f.  
*Leaf. Petiole*. The base embracing the stem. *L. am.* n. 154. 314.
30. *Anceps*. Two-edgd. *Stem*. With 2 opposit angles, as in *Sisyrinchium*, *Convallaria* *Polygonatum*, and *Hypericum perforatum*. *Phil. bot.* 40. 218.  
*Trunk*. With 2 opposit and rather acute angles. *L. am.* n. 50.  
*Leaf*. With 2 prominent longitudinal angles, and a somewhat convex disc. *Phil. bot.* 46; *am.* n. 267.
31. *Androgynus*. Androgynous. *Plant. Spike*. Bearing male and female flowers. *Phil. bot.* 93.
32. *Angulatus*. Angular. *Trunk*. Longitudinally excavated with more than 2 concave angles. *L. am.* n. 51.  
*Stem*. With 3, 4, 5 or many prominent angles. *Phil.*

*bot.* 40. See *Triangularis*, *Quadrangularis*, *Quinquangularis*, *Multangularis*. *Triangular*, *Quadrangular*, *Quinquangular*, *Multangular*.

*Anthera*. As in *Tulipa*. *Phil. bot.* 66.—*Pollen*. As in *Viola*. *Phil. bot.* 66.—*Style*. As in *Canna*. 67.—*Stigma*. As in *Muntingia*. 68.

33. *Annularis*. Annular. Consisting of a substance with two surfaces and two margins, as a hollow cylinder, a broad flat ring, or the corolla of a cowslip or primrose, in both which last the upper margin is wide and the lower narrow.

84. *Annuus*. Annual. *Root*: Dying within a year. *L. am. n.* 1. M. Link says that in the Berlin garden there is a plant differing in no respect from *Spermaoce verticillata* excepting that it is annual.

35. *Anthera*. That part of the flower which contains the pollen, and which it disperses when ripe. *Phil. bot.* 53. *t.* 8. *f.* 149. *f.* *g*; *f.* 150. *b*, *cop.* in *Bot. arr. t.* 3. *f.* 5. *b*; *f.* 6. *h*. *Bot. Arr. t.* 3. *f.* 3. *i*; and *f.* 2. *c*.

*Unilocular* in *Epacris grandiflora*, *Salvia Solarea*. *Obs.* 9729, *Verbascum Thapsus*. *Obs.* 1780, *V. nigrum*. *Obs.* 8215, *Polygala bracteolata*. *Obs.* 9799, *Adoxa Moschatelina*. *Obs.* 5652, *Polygala Chamaebuxus*. *Obs.* 7282, *Scrophularia nodosa* and *aquatica*. *Obs.* 4008. 2880, *Celsia Arcturus*. *Obs.* 6872, *Pinguicula vulgaris*. *Obs.* 4866, *Salvia lavandulifolia*. *Obs.* 5264, but in this last the antherae seem to be halved each half being supported by a pedicle.

*Unilocular* in the lateral antherae and bilocular in the intermediate anthera of each compound filament of *Corydalis formosa*. *Obs.* 10106. *Corydalis solida*. *Obs.* 384.

*Bilocular*, the cells placed end to end in *Dracoecephalum altaianse*. *Obs.* 9860, in *Lamium purpureum*. *Obs.* 5665.

*Bilocular*, the 2 inner valves somewhat shorter and placed lower than the 2 outer, in *Loranthus europaeus*. *Obs.* 9588.

Every other of a different shape, in many plants of the *Diadelphia* class, 5 round and 5 oblong, and 6 linear as large in *Cytisus nigricans*. *Obs.* 11181.



- One of the valves villose in *Galeopsis villosa*. *Obs.* 12415.
- Of a different colour and size in the 6 longer stamina of *Lythrum virgatum*. *Obs.* 10257.
- United in the class Syngenesia and in *Gentiana asclepiadea*. *Obs.* 9057, unequal in *Cassia*. *L. gen.* in *C. procumbens*. *Obs.* 9648.
- Mostly white and yellow, but pink in *Claytonia sibirica*. *Obs.* 7772.
- Containing no visible pollen as in *Asolepias*.
- Not discharging pollen, and the pollen squeezed out by pressure between glasses granular but shewing no determinate outline in *Reseda alba*. *Obs.* 10452.
- Sessile, growing to the calyx as in *Viscum album*. *Obs.* 10815, and to the corolla in *Zingiber* and *Chloranthus*.
- Minute, just discernible by the naked eye, about the twentyfourth part of the tenth of an inch long, in *Acacia armata*.
36. *Anthodium* a collection of sessile flowers surrounded by an involucre. *Phil. bot. a Spreng.* 97. t. 6. f. 83. See *Bot. arr. t. 4. f. 19. 24. 25.* Flos compositus. *Tourn. t. 8. 11. 266—285.* *Phil. bot.* 76. *Lee t. 12. f. 5.*
- That of *Filago pygmaea* is a spike terminated by naked contiguous hermaphrodite flowers. *Obs.* 3066. It is not easy to draw the line between *anthodium capitulum* and *spica*.
37. *Apetalus*. Apetalous. *Flower*. Having a calyx but no corolla. *Phil. bot.* 76.
38. *Aphyllus*. Leafless. *Trunk*. Destitute of leaves. *L. am. n.* 55.
39. *Approximatus*. Approximate. *Leaves*. Near to each other. *L. am. n.* 122, as in *Taxus baccata*. *L. sp.* ii. 1472. When near but not so as to touch.
40. *Appendiculatus*. Appendiculate. *Petiole*. With leafy rammenta at the base. (*Ramentis foliaceis*.) *L. am. n.* 815.
41. *Arboreus*. Treelike. *Trunk*. A perennial trunk consisting of one main stem. *L. am. n.* 24.
42. *Arcuatus*. Bowed. *Antherae*, as in *Cassia*. See *L. gen.*

*Rugae* in legumen of *Trifolium messanense*. *L. mant.* ii. 275.

43. *Arillus*. An outer coat of a seed, spontaneously separating. *Phil. bot.* 54. as in *Coffea* *Jasminum* *Cynoglossum* *Ocimum* *Dictamnus* *Diosma* *Celastrus* and *Evonymus*. 70 ; *Zingiber* *Cassumunar*. *Obs.* 10008, *Kaempferia pandurata*. *Obs.* 10009, *Pyrola umbellata*. *Obs.* 10810. *maculata*. *Obs.* 10811 *minor*, *Obs.* 7955. *secunda*. *Obs.* 1809, *Monotropa Hypopitys*. *Obs.* 10813, *Orchideae*, *Scirpias* *Helleborine*. *Gaertn.* i. 46. t. 14 ; *Epidendrum terrestre*. *Gaertn.* i. 47. t. 14, *Pyrola rotundifol.* *Gaertn.* i. 303. t. 63, *Juncus acutus*. *Obs.* 11564, where it appears an extension of the pedicle. In many of these it is perhaps only an inflated tunic of the seed.

44. *Arista*. A sharp mucro seated on a glume. *Phil. bot.* 52. t. 7. f. 184. b. *Bot. arr.* t. 2. f. 21, b. f. 23. b. A part of the phylla and bracteae of the Gramina and in some instances if I mistake not the phyllum itself.

45. *Arma*. Arms. Mucrones defending plants from animals. *L. am. n.* 206. The acute terminations of ligneous and cortical parts.

46. *Articulatus*. Jointed. *Root*. Intercepted by articulations. *Linn.*—as in *Convallaria* and *Triticum repens*. *Lipp.* The articulation is called by Linnæus *geniculum*, and the portion interposed between each articulation *articulus* and sometimes *internodium*.

*Balb.* Consisting of chainlikelamellae, as in *Lathraea Martynia Adoxa*, *Phil. bot.* 50, *Oxalis*, and *Dentaria*. 102.

*Trunk. Petiole. Peduncle. Spike*. Composed of joints and internodia. *Internodiis geniculatus*. *L. am. n.* 22. 223. 445. 470.

*Stem*. With articulations and internodia interposed, as in *Piper*. *Phil. bot.* 40. We have no word in English which distinctly expresses *internodium* or the space between 2 knots. The word *joint* comes the nearest to it, but like *articulus* even by Linnæus himself in *Phil. bot.* 222. par. 2, it is employed in senses so opposit that its use would only tend to confuse.

*Culm*. Connected by several articulations. *Phil. bot.* 40. t. 4. f. 14, *cop. in Bot. arr.* t. 10. f. 3. Composed

of internodia united by articulations as the stems of most Grasses.

*Leaf.* One leaf growing out from the end of another. *Phil. bot.* 47. t. 3. f. 100. *L. am. n.* 278.

*Peduncle.* With one articulation, as in *Oxalis Sida* and *Hibiscus*. *Phil. bot.* 222.

*Calyx* as in *Rhamnus catharticus*.

*Corolla* as in *Mirabilis Jalapa*, the lower part becoming indurated the upper part deciduous.

*Seedvessel.* As in *Ornithopus Hedysarum* and *Raphanus*. *Phil. bot.* 69.

*Filaments.* As in *Salvia*. *Phil. bot.* 71.

47. *Articulus.* That part of a culm which is interposed between 2 joints. *Phil. bot.* 223, as in *Chara flexilis*. *L. sp.* ii. 1624. See Internodium.

48. *Ascendens.* Ascending. *Stem.* The branches turned upwards. *Phil. bot.* 40. Bowed upwards. *L. am. n.* 33. Gradually receding, with a degree of curvature from the horizontal line upwards. *Lipp. n.* 11.

49. *Asper.* Synonymous with scaber. *Phil. bot.* 219. Rough with pointed eminences. (*Scaber* I would limit to rough with rounded eminences.)

50. *Assurgens.* Assurgent. *Leaf.* Rising upwards with a bow, or at first declining, but at length upright towards the ends. *Phil. bot.* 219.

*Leaf.* *Petiole.* *L. am. n.* 133. 318.

*Style* in *Trigonella* *L. gen.*

*Stigma* in *Cassia*. *L. gen.* Perhaps superfluous.

51. *Attenuatus.* Attenuate. *Peduncle.* Becoming gradually smaller to the end. *L. am. n.* 437. I have applied it to any part.

52. *Ater.* Atrous. *Phil. bot.* 244. Brownish black? *Linnaeus* seems to regard piceus as a modification of ater. *Gaertner* describes the seeds of *Blitum capitatum* as atrous, which are blackish rufous. *Niger* and *ater* in the Latin poets seem synonymous.

53. *Auctus.* Augmented. *Involucrum and calyx.* When there is a circle of bracteae shorter and of a different shape from the rest surrounding the base of the involucrum or calyx on the outside, as in *Coreopsis* *Bidens* *Crepis* and *Dianthus*. *Phil. bot.* 62.

54. *Avenis*. Veinless. *Leaf*. Without veins. Opposed to veined. *Phil. bot.* 219; *am. n.* 232.
55. *Axilis*. Axile. In the direction of the axis of the body in which it is placed, as the rostellum of *Tamarindus indica*. *Obs.* 8198.
56. *Axillaris*. Axillary. *Leaf*. Inserted at the exit of a branch. *Phil. bot.* 48.  
*Leaf. Cirrhus. Spine. Peduncle*. Inserted beneath the base of a branch. *L. am. n.* 111. 350. 388. 408.  
*Peduncle. Flower*. Inserted between a leaf and the stem, or between a branch and the stem. *Phil. bot.* 41. 112.
57. *Bacca*. Berry. A seedvessel without any valve, full, containing seeds (or seed) which excepting that they are inclosed by pulp are naked. *Phil. bot.* 53. t. 8. f. 158, *cop. in Bot. arr. t. 3. f. 19*. In *Capsicum* the berry is hollow and without pulp.
58. *Baccatus*. Baccate. *Seed*. When there is a parenchyma between the tunio and indusium, as in *Gloriosa superba*. *Obs.* 10015. *L. a Schreb. n.* 561.
59. *Barba*. Beard. Parallel hairs. *L. am. n.* 361. With short parallel hairs, as in the corolla of *Iris*.  
*Barba. Hall.* meaning the 3 lower segments of a bilabiate corolla. I almost incline to give the preference to this term on account of the contradiction incurred by the terms upper and lower lip in resupinate flowers, as in *Schizanthus*.
60. *Barbatus*. Barbate. *Leaf*. Beset with parallel hairs. *L. am. n.* 241.
61. *Bicapsularis*. Bicapsular. *Seedvessel*. As in *Paeonia* and *Asclepias*. *Phil. bot.* 68.
62. *Biennis*. Biennial. *Root*. Producing flowers the second year and then perishing. *L.*—Flowering and then perishing. It is generally in the second year which it flowers but it is sometimes the third year if not the fourth year, as I have observed in *Smyrnum Olusatrum*.
63. *Bifarius*. Bifarious. *Leaves*. Growing from 2 opposite sides of a branch. *L. am. n.* 115.
64. *Bifidus*. Bifid. *Leaf. Calyx*. Divided by linear sinuses with straight margins. *L. am. n.* 185. 501. *Phil. bot.* 43.  
*Calyx*. As in *Utricularia*. *Phil. bot.* 63; *am. n.* 501.  
*Furca. L. am. n.* 385.

- Style.* As in *Polygonum Persicaria*, and *Cornutia*. *Phil. bot.* 67.
65. *Bigeminatus*. Bigeminate. *Leaf.* When four folioles are connected to the end of a dichotomous petiole. *Phil. bot.* 47.—Several folioles connected to a dichotomous petiole. *L. am. n.* 285.
66. *Bijugus*. Bijugate. *Leaf.* Pinnate, with four folioles. *L. am. n.* 284.
67. *Bilabiatus*. Bilabiate. *Corolla* with 2 lips, the upper lip not arched as in ringent corollas. *From Willd. bot.* 82. n. 14. See divisions of *Justicia*. *L. a Willd.*
68. *Bilobus*, *Trilobus*, *Quadrilobus*, *Quinquelobus*. With 2, 3, 4, 5 lobes. Bilobate. *Leaf.* *Phil. bot.* 48. With 3 lobes. *Phil. bot. t. 1. f. 17, cop. in Bot. arr. t. 7. f. 17*, a leaf of *Anemone Hepatica*.
69. *Bilocularis*. Bilocular. *Seedvessel.* With 2 cells. As in *Hyoscyamus Sinapis Nicotiana*. *Phil. bot.* 60.  
*Seed.* As in *Cornus Xanthium Valeriana Cordia*. *Phil. bot.* 70.
70. *Binarius*, ternarius quaternarius quinquarius senarius septenarius &c. Binary ternary quaternary quinary senary septenary. *Phylla, laciniae of the calyx, petals, laciniae of the corolla, stamina &c.* Used to express the number of parts.
71. *Binatus*. Binate. *Leaf.* Digitate, with two folioles. *Phil. bot. t. 2. f. 63, cop. in Bot. arr. t. 7. f. 50; am. n.* 281.
72. *Binus*. In pairs. *Leaves.* Two leaves growing at the joint of a branch. *L. am. n.* 120.  
*Peduncles.* When two proceed from the same place, as in *Capraria* and *Oldenlandia zeylanica*. *Phil. bot.* 222. Used inaccurately by Linnaeus in *Carex*, where he means only 2 on a stem.
73. *Bipinnatus*. Bipinnate. *Leaf.* Doubly pinnate, pinnate folioles being attached to the sides of a petiole. *Phil. bot. t. 2. f. 78, cop. in Bot. arr. t. 8. f. 56. L. am. n.* 287.
74. *Biternatus*. Biternate. *Leaf.* Doubly ternate, three ternate folioles being attached to a petiole, as in *Epi-medium*. *Phil. bot. t. 2. f. 77, cop. in Bot. arr. t. 8. f. 57. L. am. n.* 286.

75. *Bivalvis*. Bivalve. *Capsule*. *Germen*. When a capsule or germen has 2 sutures.

• *Seedvessel*. As in *Chelidonium* and *Brassica*. *Phil. bot.* 60.

76. *Botrysium*. A compound racemus.

77. *Brachiatus*. Decussate. *Stem*. With decussate branches in cross-pairs. *Phil. bot.* 40. t. 4. f. 117. *L. am.* 85.—An unnecessary term.

78. *Bractea*. A leaf growing near the flower, differing in appearance from the other leaves. *L. am. n.* 297; *phil.* 50, as in *Tilia*, *Fumaria bulbosa*, *Hedysarum indicum*, *Dracoecephalum*, *Lavandula Stoechas*, *Salvia Horminum*, *Melampyrum*, *Monarda*, *Bartsia*, *Hebenstretia*, *Mussaenda*. *Phil. bot.* 50. 57. 220. t. 5. f. 120, *cop. in Bot. arr. t. 9. f. 8. s. a. Sm. intr. t. 9. f. 117*.  
• Liable to be mistaken for a calyx, in *Helleborus (hyemalis)*, *Prasiflora*, *Anemone Hepatica*, *Peganum*. *Phil. bot.* 57.

Agglutinated to the calyx so as to form a part of the back of the calyx in *Selago rapunculoïdes*. *Obs.* 11759. Without this agglutination the calyx would not have been annular.

Annular in form of a calyx in *Psoralea pinnata*. *Obs.* 12365.

As highly coloured and corollaceous as the calyx and both more highly coloured than the corolla in *Salvia splendens*.

The lowermost in the spikes of *Scirpus caespitosus* foliaceous at the end. *Obs.* 4956.

Placed a little below the pedicles in *Hyacinthus comosus*. *Obs.* 8102.

79. *Bracteatus*. Bracteate. *Peduncula*. Furnished with bracteae. *L. am. n.* 443.

• *Flower*. Destitute of corolla and calyx but furnished with a bractea.

80. *Brevis*. Short. *Petiole*. When not so long as the leaf. *L. am. n.* 307.

81. *Brevissimus*. Very short. *Petiole*. When very far from equalling the leaf in length. *L. am. n.* 306.

• *Corolla*. (Much shorter than the calyx.) *Phil. bot.*

64.—*Filaments*. As in *Triglochin*. 65.—*Style*. As in *Papaver*, 67.

82. *Bulbus*. Bulb. The winter quarters of a plant seated on the descending caudex. *Phil. bot.* 50. t. 6. f. 125—127, *cop. in Bot. arr.* t. 11. f. 4. 3. 2.—The winter quarters of a plant from the rudiments of the past leaves. *L. am.* but the bulb of an onion is formed within the first months of its growth.

The rudiment of a future plant continuous with and separating spontaneously from the parent stem and about to form a new plant of the same nature with the parent plant.

83. *Bulbiferus*. Bulbiferous. *Trunk*. Bearing bulbs. *L. am. n.* 77.

84. *Bullatus*. Blistered. *Leaf*. Rugose, but the disc being much enlarged, and the circumference not so, the leaf is elevated between the wrinkles into a kind of cones concave underneath, as in *Salvia* and *Ocymum*. *Phil. bot.* 217.

85. *Caducus*. Caduceous. Falling off at the first unfolding of the flower. *Calyx*. As in *Papaver* and *Epimedium*. *Phil. bot.* 63.

*Corolla*. As in *Actaea* and *Thalictrum*. 65.

*Involucellum*. As in *Ferula* and *Heracleum*. *Phil. bot.* 79.

*Leaves*. *Stipulae*. *Bractea*. Falling off in a short time and not continuing the whole summer. *L. am. n.* 274. 381. 385.

86. *Caeruleus*. Blue. *Phil. bot.* 244.

87. *Calathiformis*. Calathine. Hemispheric with an erect margin. See *Sal. R. in lin. tr.* v. 137. t. 5. f. 5.

88. *Calcitr*. Spur. A corolline nectarium of a conical form projecting backwards. *Phil. bot.* 228.—A conical projection of the parts of fructification, of the corolla in *Viola Antirrhinum Orchis Delphinium* and the *Asperifoliae*, of the calyx in *Delphinium* and *Tropaeolum*, of the filaments in *Viola*.—*Willd. bot.* 89. t. 4. f. 40; t. 5. f. 112. 113.

As constant in length as other parts of a corolla. See *Antirrhinum purpureum* and *repens*.

Employed by *Linnaeus* as a generic mark in *Orchideae* and *Antirrhinum*, but gibbosities of the corolla are not good generic characters.

88. \* *Callosus*. Callous. *Seeds*. As in *Citrus*. *Phil. bot.* 78.

89. *Calycinus*. Calycine. *Spina*. Inserted into a calyx. *L. am. n.* 389.

90. *Flos*. Flower. A flower with a calyx but without a corolla.

90. *Calyptra*. The calyx of the Musci, cowlshaped, placed upon the anthera (capsule.) *Phil. bot.* 52. t. 7. f. 136. c. A membranaceous cover of the theca of the Musci. *L. phil. a Spreng.* 101. t. 7. f. 16. b, fixed, a loose. *Gray t.* 20. f. 2.

91. *Calyx*. The bark of the plant present in the fructification. *Phil. bot.* 52. *L. am. n.* 493. *Bot. arr. t.* 3. f. 10. The outer covering of a complete flower.

Mostly herbaceous but of the same colour and texture as the corolla in *Magnolia glauca*. *Obs.* 5467, and in *Tropaeolum majus* the 3 upper segments have similar streaks with those of the 2 upper petals.

More deeply coloured than the corolla in *Statice sinuata*. *Obs.* 10098, *Delphinium Consolida* and *Salvia splendens*.

Not essentially distinct from corolla. The parts which merit the name of calyx in most of the species of *Heliborus* are intitled to the appellation of corolla in *Heliborus hyemalis*. And in *Sanguisorba officinalis* and *media* the tetrapetalous corolla is inserted into the margin of the calyx, in *S. canadensis* a similar tube and limb are of one substance and merit the title of a hypocraterine calyx. So little does nature distinguish between calyx and corolla. *Poterium*, which is not generically distinct, has a quadridentate calyx and tetrapetalous corolla.

Calcarate and nectariferous in *Tropaeolum majus* and has the same appendage of a spur as the corolla in *Delphinium macropetalum*. *Obs.* 10087, *D. tenuissimum*. *Obs.* 10088, *D. grandiflorum*, and *D. Consolida*, and in the back of the calyx of *Scutellaria*. *Obs.* 12416.

Blue during florescence afterwards green, in *Polygala vulgaris*.

The segments and phylla generally with equal halves, but in *Cistus* unequal, and in many species of *Rosa*



and Mesembryanthes one of the segments has appendages on one margin and none on the other.

Is changed into a berry, in *Morus Gaultheria Bli-tum*. *Obs.* 7559, and *Taxus baccata*. *Obs.* 3277. *Bot. mat. med.* iv. 572, and the tube in *Rosa* becomes a succulent capsule.

Mostly tubular and with 5 teeth segments or phylla, being quinary in most plants even where the stem is quaternary, as in *Didynamia Gymnospermia*.

Sometimes the portions coherent above forming a kind of calyptra, as in the male flowers of *Casuarina stricta*. *Obs.* 11639.

Generally shorter than the corolla, but somewhat longer in *Berberis pinnata*. *Obs.* 11353.

Dividing obliquely into 2 parts like an operculate capsule, in *Scutellaria galericulata*. *Obs.* 12416.

Segments mostly entire, but in *Pedicularia sylvatica* serrate. *Oct.* 1827, and *Hypericum*. *L. & W.* iii. 1463.

Slides into bractea in *Orobanche*, in which it appears anteriorly a true calyx but is deficient behind. Corolla is equally deficient in *Celsia*.

Bractea slides into calyx diphyllous to calyx triphyllous tetraphyllous pentaphyllous. A calyx pentaphyllous may be considered as a circle of 5 bracteae.

Not distinct from involucrem. In *Oxybaphus viscosus* the calyx surrounds the corolla as in the generality of plants but in some species it is said to contain several corollae. See *Kunth. aeq.* ii. 15 and *Dec. & Dub.* i. 393. 23 Oct. 28.

Sometimes circumscribed, the upper half falling off as in *Rhamnus Frangula*, and probably all the species. See *Bot. mat. med.* i. 429.

In *Leptospermum scoparium* the segments being of a different colour from the part below appear like smaller petals alternating with the real petals. *Obs.* 9041.

Double in *Lavatera olbia*, in *Ehrharta panicea*. *Obs.* 10145.

92. *Campanulatus*. Campanulate. *Corolla*. Bellying out without a tube. *Phil. bot.* 52. *Sal. R. in lin. tr.* v. 137. t. 5. f. 6. *Sm. intr. t.* 13. f. 159. *Bot. arr. t.* 4. f. 2. *cop.* from *campaniformis*. *Tourn. inst. t.* 9.

93. *Canaliculatus*. Canaliculate. *Leaf*. Hollowed out lengthways by a deep furrow nearly into a half cylinder. *Phil. bot.* 46. *t.* 1. *f.* 61. The upper surface excavated by a deep longitudinal furrow. *L. am. n.* 248.  
*Stigma*. As in *Colchicum*. *Phil. bot.* 68.
94. *Canus*. Hoary. A pubescence thinner than tomentose and not sericeous, as in *Chrysanthemum Balsamita*.
95. *Capillaris*. Capillary. *Filaments*. As in *Plantago*. *Phil. bot.* 65. Of hairlike fineness.  
*Gland*. As in *Ribes*, *Antirrhinum quadrifolium*, *Scrophularia Cerastium* & *Silene*. *Phil. bot.* 111.  
*Peduncles* in *Antirrhinum aegyptiacum*.  
*Calyx*. Simple and filiform. As in *Hieracium* and *Sonchus*. *Phil. bot.* 70.  
*Style*. As in *Ceratocarpus*. *Phil. bot.* 67.
96. *Capitatus*. Capitata. *Stigma*. As in *Tribulus Huggonia*, *Vinca Ipomaea Olusia*. *Phil. bot.* 68.
97. *Capitulum*. Consisting of several flowers clustered together in a nearly globular form, as in *Gomphraena* (Globe *Amaranthus*.) *Phil. bot.* 41. Several sessile flowers collected into a ball. *L. am. n.* 454.
98. *Capsula*. Capsule. A hollow seedvessel opening in some determinate way. *Phil. bot.* 53. *t.* 8. *f.* 160, 159, 161, *cop. in Bot. arr. t.* 5. *f.* 14, 6, 7.—*f.* 5. But dehiscence is no more essential to a capsule than to a legumen. The legumen in *Trifolium* is "non dehiscent," and the capsule in *Antirrhinum majus* cracks at the end. See *Bot. mat. med.* iii. 390. n. 6, and *Tourn. paris.* 23. Many unilocular univalve capsules do not open and in *Triumfetta* we have a quadrilocular capsule which does not open. See *Gaertn.* ii. 137. *t.* 111.  
The valves are generally coherent at the base.  
Cells mostly equal and opposit, but in *Antirrhinum majus* and *A. Orontium* unequal and placed obliquely.  
Cells vary in number in the same genus, as in *Hypericum*.
99. *Carinatus*. Carinate. *Leaf*. When the back of the disc projects longitudinally. *Phil. bot.* 46; *am. n.* 261.
100. *Carnosus*. Fleshy. *Leaf*. Full of a rather solid pulp within. *L. am. n.* 265, as the leaves of the natural order of *Succulentæ*. *Phil. bot.* 46.

101. *Cartilagineus*. Cartilaginous. *Leaf* with the margin strengthened by a cartilaginous substance of a texture very different from that of the rest of the leaf. *Phil. bot.* 44. *t.* 1. *f.* 34; *a Spreng.* *t.* 1. *f.* 9.
102. *Catenulatus*. Chainlike. *Scabrities*. *Phil. bot.* 109.
103. *Cauda*. Tail. *Seed*. As in *Anemone Pulsatilla*, *Populus Typha Lagurus Arundo Saccharum*. *Phil. bot.* 86; *a Spreng.* 102. *t.* 2. *f.* 16. A feathery hair.
104. *Caulis*. Stem. A trunk peculiar to herbs elevating the leaves and fructification. *Phil. bot.* 39; *a Spreng.* *t.* 3. *f.* 20, shewing the different directions of branches —A trunk which supports both leaves and fructification. *L. am. n.* 17.
105. *Caulinus*. Cauline. *Leaf. Peduncle*. Inserted into the stem. *Phil. bot.* 41. 43. *t.* 3. *f.* 89. *L. am. n.* 109. 403.
106. *Cercus*. A horny substance to which the Orchidés adhere, inserted into the stigma, and believed to convey spermatic matter from the orchides to the stigma of the *Asclepiadeae*. 10 *Sep.* 15.
107. *Cernuus*. Cernuous. *Peduncle*. The end pointing to the earth. *L. am. n.* 423. Incurvated at the end, so that the flower nods either to one side or towards the ground, and cannot be raised up from the rigid curvature of the peduncle, as in *Carpesium*, *Bidens radiata*, *Carduus nutans*, *Scabiosa alpina*, *Helianthus annuus*, *Cnicus sibiricus*. *Phil. bot.* 221, and *Clematis integrifolia*.
108. *Cespitosus*. Cespitose. *Plant*. When many stems proceed from the same root. *Phil. bot.* 212.
109. *Chalaza*. A colourd spot or tubercle on the membranes of the seed, at some distance from the hilum, and opposit to it. See *Guertn.* i. *cxxxv.* *Vent. tabl.* i. 482. *Dec. theor.* 433.

At the end of the indusium in *Citrus decumana* (punctata) *Obs.* 9818, and *C. Medica Limon.* *Obs.* 9819, in *Prunus Lauro-cerasus.* *Obs.* 8238, in which the indusium peels off from the tunic.

Opposit to the aperture of the tunic and to the hilum in *Hibiscus vitifolius.* *Obs.* 10002, and *Tacca pinnatifida.* *Obs.*

On the side of the nucleus a little above the hilum, between the tunic and indusium in *Malpighia glabra.* *Obs.* 9418.

On the tunic in *Vicia Faba*. *Obs.* 9404. There are no traces of any thickening or discoloration in the indusium. It is visible on the outside of the seed.

In the outer and inner layer of the tunic, and in the indusium in *Gossypium religiosum*. *Obs.* 10042.

None in *Asparagus officinalis*. *Obs.* 3061.

110. *Chord*, hilaceous in *Bignonia hispida*. *Gnaphys*. *Obs.* 10078, extends along the face of the tunic from the hilum to the chalaza.

111. *Ciliatus*. Ciliate. *Leaf*. *Stipula*. *Spihe*. The margin beset longitudinally with parallel bristles, (or hairs.) *Phil. bot.* 44. t. 1. f. 50, *cop. in Bot. arr.* t. 7. f. 43, ill done, being rather a representation of acutely crenate, the angles terminating in hairs.—Parallel bristles disposed along the margin. *L. am. n.* 196. 347. 473.

*Calyx*. As in some species of *Centaurea*. *Phil. bot.* 63.

*Corolla*. As in *Ruta Tropaeolum Menianthes*. *Phil. bot.* 64.

112. *Cinereus*. Ashcoloured. *Phil. bot.* 244.

113. *Circinalis*. Rolled in. *Leaves within the bud*. Rolled spirally inwards and downwards, as in the Filices and some of the Palms. *Phil. bot.* 106. 108.

114. *Circumfusus*. Circumfuse. *Leaf*. When the lobes of a leaf expand in all directions, and its insertion into the petiole or branch is covered by a part of the leaf, as in many of the Malvaceae. 15 Aug. 12.

115. *Circumscissus*. Circumscinded. *Capsule*. As in *Anagallis*. *L. a Schreb. n.* 270. Separating horizontally into 2 valves. *Bot. arr.* t. 5. f. 9 a, b, c.

*Calyx* in *Rhamnus*, the upper portion falling off before the fruit ripens.

116. *Cirrhiferus*. Cirrhose. *Leaf*. Terminated by a cirrus, as in *Gloriosa Flagellaria* and *Nissolia*. *Phil. bot.* 44.

*Flowers*. Bearing cirrhi, as in *Cardiospermum* and *Vitis*. *Phil. bot.* 112.

*Peduncle*. *L. am. n.* 406.

117. *Cirrhus*. Tendril. A filiform spiral band by which a plant is bound to another body. *L. am. n.* 294; *phil. n.* 294. As in *Vitis Bannisteria Cardiospermum Pisum*

**Bignonia & Smilax.** *Phil. bot.* 50. 103. *t.* 5. *f.* 118. *a*,  
*cop. in Bot. arr. t.* 10. *f.* 6. *a*.

***Cirrhus foliaceus.*** Lamellar like a flat leaf, terminating the petiole, as in *Orobanchis vernus*.

118. ***Clavatus.*** Clavate. *Petiole. Peduncle.* Becoming thicker towards the end. *L. am. n.* 301. 438.

***Calyx.*** As in *Silene. Phil. bot.* 63.

119. ***Coadunatus.*** Coadunate. *Leaves.* Growing together at the base. *Phil. bot.* 219. *L. am. n.* 152.

120. ***Coarctatus.*** Coarctate. *Branches.* Towards the top nearly incumbent. *L. am. n.* 101.

***Panicle.*** When the pedicles are near together. *Phil. bot.* 41, opposed to divaricate, 233.

121. ***Coccineus.*** Scarlet. *Phil. bot.* 244.

122. ***Cochleatus.*** Cochleate. *Legumen.* Wreathed spirally like a snailshell. *Giseke* 136. As in *Medicago polymorpha. L. sp. ii.* 1087.

122.\* ***Cohaerens.*** Coherent. *Petals.* Sticking together, as the petals of *Oxycoccus* and the 2 lower petals of the *Papilionaceae*.—*Gray i.* 141. *Dec. theur.* 476.

***Antherae*** of the *Compositae*, of the class *Syngenesia*.

***Pollen*** of *Epilobium* and *Oenothera*.

123. ***Coloratus.*** Coloured. *Leaf. Bractea.* Of any other colour than green, as in *Amaranthus tricolor. Phil. bot.* 45. *L. am. n.* 219. 394.

124. ***Columella.*** (1) A columnar receptacle of the seeds of a unilocular seedvessel. *Receptaculum seminum. Phil. bot.* 54. *t.* 8. *f.* 161, *cop. in Bot. arr. t.* 5. *f.* 7, and *Rose t.* 9. *f.* 163.

(2) A linear receptacle of the seeds of a quadrilocular seedvessel. See *Willd. bot.* 104, *n. c. p.* 485. *t.* 6. *f.* 167. 169.

(*Columella. Phil. bot.* 53. *t.* 8. *f.* 160. *c. cop. in Bot. arr. t.* 5. *f.* 14, and *Rose t.* 9. *f.* 162 is erroneous.)

125. ***Coma.*** Composed of bracteaes terminating the stem. *L. am. n.* 398; *phil.* 220, as in *Fritillaria imperialis*, *Lavandula Stoechas*, *Salvia Horminum. Phil. bot.* 220.

Composed of bracteaes which are the rudiments of flowers in *Trifolium subterraneum. Obs.* 9824.

126. ***Commissura.*** Commissure. The union of the margins composing a fissure.

127. ***Communis.*** Common. *Peduncle.* Common to several flowers. *L. am.* 400.

- Receptacle.** One which connects together several flowers, so that if any are taken away an irregularity would appear. *Phil. bot.* 54. t. 7. f. 140. *Bot. arr.* t. 4. f. 23. a.
128. **Comosus.** Comose. *Spike.* Terminated by small leaves. *L. am.* 475.
129. **Compactus.** Compact. *Leaf.* Consisting of a solid substance. *L. am.* n. 262.
130. **Complanatus.** Complanate. Compressed so as to become flat, as the calyx of *Oryza oiliata*. *Obs.* 11145.
131. **Completus.** Complete. *Flower.* A flower with calyx and corolla. *Phil. bot.* 75.
132. **Compositus.** Compound. *Stem.* Subdividing as it ascends into branches. *Phil. bot.* 40.  
*Leaf.* When a petiole supports more than one leaf (or foliole.) *Phil. bot.* 47.  
*Umbel.* Whose peduncles bear umbellulae. *Phil. bot.* 54.
133. **Compressus.** Compressed. *Trunk.* The two opposite sides flat. *L. am.* 49.  
*Leaf.* Pulpy, its sides flattened more than its disc. *L. am.* n. 260.
134. **Concavus.** Concave. *Leaf.* The margin more contracted than the disc, so that the disc is depressed. *L. am.* n. 249.  
*Stigma* as in *Viola*. *Phil. bot.* 68.
135. **Conduplicatus.** Conduplicate. *Leaves within the bud:* When the sides of a leaf approach to each other in a parallel direction. *Phil. bot.* 106. t. 10. f. 4. As in *Quercus*, *Rhamnus* *Frangula*, *Juglans* *Pistacia* *Rhus* *Fraxinus* *Sorbus* *Rosa* *Rubus* *Potentilla reptans*, *Pisum* *Pastinaca* *Heracleum* *Poterium*. 107.
136. **Confertus.** Crowded. Opposed to remote. *Phil. bot.* 233. Opposed to dispersus. See *L. sp.* i. 90. n. 2.  
*Branches.* Numerous, almost covering the stem. *L. am.* n. 97.  
*Leaves.* Numerous, leaving scarcely any part of the branch or stem uncovered. *L. am.* n. 117. When so numerous as to leave no part of the branches uncovered. *Phil. bot.* 48. t. 8. f. 105, cop. in *Bot. arr.* t. 9. f. 3. e, as in *Sempervivum monanthes* and *Potamogeton dansum*.  
*Verticillus.* Peduncles near together. *L. am.* n. 452.

- Umbel*. The flowers set close together, as in *Sanicula*.
137. *Confluens*. Confluent. *Leaves* coherent at the base.  
*L. am. n.* 121.
138. *Conglomeratus*. Conglomerate. *Flowers*. When the peduncle is branched and the flowers are closely compacted together without any order. In a panicle opposed to diffuse. *Phil. bot.* 222.  
*Spike*. See *Glomeratus*.
139. *Congestus*. Clusterd. *Flowers* sessile, as in *Beta vulgaris*. *L. a Murr.* 262.—In *conglomeratus* the peduncle is mentiond as being branched.
140. *Conicus*. Conical. *Receptacle*. As in *Anthemis* and *Melampodium*. *Phil. bot.* 71.
141. *Conjugatus*. Conjugate. *Leaf*. Pinnate, with only 2 folioles from the sides of the petiole. *Phil. bot.* 47; *am. n.* 279.  
*Racemus*. *L. am. n.* 484, referring to *n.* 279, meaning probably with only 2 pedicles at the end of the peduncle
142. *Connatus*. Connate. *Leaves*. When opposit leaves grow into one, as in *Lonicera Periclymenum* and *Eupatorium perfoliatum*. *Phil. bot.* 49. *t.* 3. *f.* 98, *cop. in Bot. arr. t.* 9. *f.* 4. *h.* Opposit leaves coadunate at the base. *L. am. n.* 156.
143. *Connivens*. Connivent. *Corolla*. When the ends of the lobes of the limb converge. *Phil. bot.* 223.  
*Filaments*. *Willd. bot.* 93.
144. *Contiguus*. Contiguous. Touching each other.  
*Folioles* of *Tribulus cistoïdes*.  
*Granules* on the leaves of *Erica urceolaris*.
145. *Contortus*. Wreathed. *Seedvessel*. When wreathed spirally, as in *Spiraea Ulmaria*, *Helicteres* and *Thalictrum*. *Phil. bot.* 224.  
*Calyx*, as in *Aegiceras majus*. *Ols.* 11842.  
*Antherae* as in *Chironia*. *L. a Schreb.* i. 138.  
*Stigmata* as in *Nigella*.
146. *Contrarius*. Contrary. *Dissepiment*. Contrary to the valves of the seedvessel, as in *Biscutella* and *Thalspi*. *Phil. bot.* 69. When the edge of one part is opposed to the plane of another, as the edge of the capsule is opposit to the rachis of the racemus in *Veronica maritima*.  
*Leaves* when the margin is opposit to the stem as in *Iris germanica*.

147. *Convexus*. Convex. *Leaf*. When the margin is more contracted than the disc, and the disc elevated. *L. am. n. 250. Phil. bot. 46.*

*Receptacle* as in *Matricaria. Phil. bot. 71.*

148. *Convolutus*. Convolute. *Leaves within the bud*. When the margin of one side of a leaf surrounds the other margin of the same leaf in the manner of paper coiled up in form of a cone (or common scroll.) *Phil. bot. 105. 307. t. 10. f. 1, and 9, in which last fig. two leaves are represented; cop. in Willd. bot. 59. t. 250, 258, as in Prunus Armeniaca and P. domestica.*

149. *Cirrhus*. Twisted into rings. *L. am. n. 357.*

*Stigmata* as in *Crocus. Phil. bot. 67.*

150. *Corculum*. The first beginning of a new plant within the seed. *Phil. bot. 54. Bot. arr. t. 6. f. 3. b. Sm. intr. t. 1. f. 4. g. Gray i. t. 14. f. 6. t. 15. f. 22. c.* That part of a seed which is the embryo of a future plant, consisting of a rostellum and plumula, and in the dicotyledonous plants of a rostellum plumula and cotyledons. It is sometimes in the center of a perisperm, sometimes the end only is embedded in a perisperm, sometimes adhering to a vitellus which is a species of perisperm, this vitellus adhering to the outside of a perisperm, as in the Gramina. 27 Feb. 15.

Near the hilum. *Phil. bot. 71*, but in *Arum, Conval-laria multiflora*, and *Smilax macrophylla* near the chalaza. *Obs. 10011.*

Placed transversely, that is at right angles to a line passed through the hilum to the opposit point of the circumference of the seed, as in *Ardisia solanacea. Obs. 10018*, in many of the monocotyledonous plants, and in *Cyclamen europaeum* and *coum. Obs. 10065. 10064.*

Generally smaller than the perisperm, but of the same breadth in *Mimusops Elangi. Obs. 10020.*

Invested by the indusium at the base, by the perisperm in the middle, by the diasperm in the upper part, and by the chalaza at the end, in *Helenia Alhugas. Obs. 10010.*

Entire in *Cyclamen europaeum. Obs. 10065* and *C. coum. Obs. 10064* tho both ranked among dicotyledonous plants.



Of a granular texture in *Bignonia radicans*? *Obs.* 9409, and *Cotyledon Umbilicus*. *Obs.* 9602, in which minute seed the granules are as large as in large seeds.

The granules of the rostellum generally disposed in lines but all the granules disposed in lines in *Atriplex spinacifolia*. *Obs.* 1479, *Chenopodium maritimum*, *Atriplex pedunculata*. *Obs.* 4382, *Pentapetes phoenicea*. *Obs.* 9990, *Polemonium caeruleum*. *Obs.* 7103, *Polygala verticillata*. *Obs.* 9662, *Valeriana rubra*. *Obs.* 5061, *Allium fistulosum*. *Obs.* 3745, and I think throughout the monocotyledonous plants.

Granular in what appears a monocotyledonous plant, *Paris quadrifolia*. *Obs.* 6293.

The granules sometimes compound, as in *Phaseolus nanus*. *Obs.* 8152, *Pisum sativum*. *Obs.* 8180, and *Vicia Faba*. *Obs.* 9404.

Of the size of a grain of sea sand in *Tacca pinnatifida*. *Obs.* 6293, and *Paris quadrifolia*. *Obs.* 10014.

Half as large as a grain of Calcutta sea sand in *Asarum europaeum*. *Obs.* 10067.

Generally homogeneous, but in *Gossypium arboreum*. *Obs.* 9991, containing hard yellow grains.

Generally single, sometimes double, in *Bignonia stans*. *Obs.* 10074, and treble in a seed of *Euonymus latifolius*. *Obs.* 5429.

Green in *Chelone campanuloides*. *Obs.* 10137, *Salix ulmifolia*, *Viscum album*. *Obs.* 379, *Euonymus europaeus*. *Obs.* 3736, and found so in *Geranium bohemicum* at the end of 34 years.

151. *Cordatus*. Cordate. *Leaf*. Subovate, with a sinus at the base, without any angles behind. *L. am. n.* 176. *Phil. bot.* 43. t. 1. f. 10, *cop. in Bot. arr.* t. 7. f. 10. The base divided into 2 round lobes the anterior part being ovate. *Willd. bot.* 27. t. 1. f. 20; t. 2. f. 27. (t. 7. f. 203, is cordato-ovate.) Exemplified in *Morus nigra*.

152. *Cordato-orbicularis*. Cordato-orbicular, as in the leaves of *Pelargonium zonale*.

153. *Coriaceus*. Coriaceous. Of the texture of shoe leather.—*Gray* i. 41.

154. *Corneus*. Horny. *Perisperm*. Of a hornlike texture, as in *Aparagus officinalis*. *Obs.* 3061, most of the mo-

monocotyledonous plants, and *Galium Aparine*. *Obs.* 994. *Gray* i. 41.

155. *Cornutus*. Horned. *Anthera*. As in *Hamamelis* *Erica Vaccinium* and *Pyrola*. *Phil. bot.* 66.

156. *Corolla*. The inner bark of a plant present in the flower. *Phil. bot.* 52. *Tourn. inst. t. 1, cop. in Bot. arr. t. 3. f. 2. a.*

Distinguishable from calyx by its parts being placed alternately with the stamina, whereas the parts of a calyx are placed opposit to the stamina, as is evident in the complete flowers of the classes *Tetrandria* and *Pentandria*. *Phil. bot.* 57. But in *Elæagnus* the stamina alternat with the segments of the calyx. See *Phil. bot.* 65, and in *Epimedium* all the parts are opposit.

Nature has placed no absolute limits between calyx and corolla. In *Daphne Mezereon* and *D. Laureola* they grow together being united at the margin. *Phil. bot.* 58.

Pale green and of herbaceous texture in *Eucomis regia*, and indistinguishable from calyx in *Cactus flagelliformis*, *Melaleuca hypericifolia*. *Obs.* 10872, *Rumex obtusifolius* and *sanguineus*. *Obs.* 5115. 5183, and *Adoxa Moschatellina*. *Obs.* 5652, and distinguishable only by its insertion, in *Acer campestre*. *Obs.* 8959.

As green as the leaves in *Helleborus viridiflorus*.

Of a coarser texture and more hirsute than the calyx, in *Gardenia dametorum*. 1 *Aug.* 15.

Aculeate in *Solanum Hystrix*. *Brown, Rob.* i. 446. n. 15.

Permanent in *Erica*, *Helleborus niger foetidus* and *viridiflorus*, and the globose permanent base becomes a nut in *Mirabilis Jalapa*, the tube falling off. *Obs.* 5200.

*Corolla?* in *Taxus* and *Juniperus* becomes part of the fruit.

Continuing to grow and at length becoming a covering to the seed in *Rumex sanguineus*. *Obs.* 5183.

As distinct from calyx in some monocotyledonous as in dicotyledonous plants, as in *Tradescantia virginica*. *Obs.* 1.

Losing its colour without withering in *Gentiana Amarella*, after pollescence assuming the habit of a

calyx. Had there been no calyx I should have considered the corolla as a calyx. *Obs.* 6016.

Yellow turning to white, in *Alyssum calycinum*. *Krock. ii. pars ii.* 39, and other authors.

A monopetalous corolla inserted into the mouth of the calyx in *Boerhavia*. *Obs.* 10753.

In *Campanula* and *Erica* impervious at the base.

Monopetalous corollae mostly annular at the base, but in *Lobelia* *Polygala* and *Celsia* not so.

Polypetalous corollae irregular in *Papilionaceae* *Dictamnus* and *Epilobium angustifolium*, and in *Euphorbia* irregular in position, 2 of the petals being near together and 2 and 3 alternating with the segments of the calyx. 2 *Feb.* 16.

The limb when unequal in breadth or in the length of its divisions is generally longer in its outer margin, but in the female flowers of *Xeranthemum annuum*. *Obs.* 4762, and *Centaurea Cyanus*. *Obs.* 9782, it is shorter.

After flowering rolling up and stil retaining its moisture, in *Iris*, *Statice sinuata*. *Obs.* 10098, and *Tradescantia virginica*?

In the same genus we find some species with four petals and others with only one, as in *Delphinium Consolida*.

A beautiful green spot on white is seen in the inner petals of *Galanthus nivalis* and *Leucoium aestivum*, and green in the inside of the tube of the corolla of *Hyoscyamus albus*. *Obs.* 10090.

A perfect black is found on white in *Vicia Faba*, brownish black in *Delphinium elatum* and *grisiflorum*, purplish brown in *Hyacinthus comosus*. *Obs.* 8102.

Not essential to the production of fruit. *Hedysarum hirtum* the first year produced fruit without a corolla and the next year a corolla. *L. mant.* 447. The infertility of the earlier flowers of *Viola odorata* would almost induce one to believe that their beautiful and odoriferous corollae robbed the germen of its due nourishment. Will the destruction of the first petals give fertility to the germina: May not the destruction of petals give fertility to some barren plants.

- Monopetalous corollae** with a double limb, as in *Canna*, form the shade between monopetalous and polypetalous corollae.
157. *Corollinus*. Corolline. *Flower*. A flower with a corolla without a calyx.
158. *Coroniforme*. Crownlike. *Stigma*. As in *Pyrola*. *Phil. bot.* 68.
159. *Coronula*. A little calyx formd of the perianthium of the flower adhering to a seed and enabling it to fly, as in *Scabiosa* *Knautia* *Ageratum* *Arctotis*. *Phil. bot.* 54.
160. *Corymbus*. A fastigate racemus, as in *Spiraea opulifolia*. *Obs.* 6059, *Ledum*, and the *Siliquosae*. *Phil. bot.* 41. *t.* 9. *f.* 163, cop. in *Bot. arr.* *t.* 6. *f.* 7. *Willd. bot.* 70. *t.* 2. *f.* 25; *t.* 8. *f.* 266. A peduncle consisting of lateral branches rising nearly to an equal height, as in the flowers of *Brassica* and *Sinapis* while they continue in blossom, but when in fruit they become racemi.
161. *Costa*. The middle rib of a leaf stipula bractea or phyllum.
162. *Costatus*. Costate when there is a costa in a leaf stipula bractea or phyllum.
163. *Cotyledon*. The body which forms the sides of the seed (of dicotyledonous plants), imbibing water caducous. *Phil. bot.* 54. *Lee t.* 2. *f.* 8. *a*, cop. in *Bot. arr.* *t.* 6. *f.* 3. *a. Guertn.* ii. 150. *t.* 113. *f.* 3. *h. H. Gray* i. 256. *t.* 14. *f.* 6. 12.
- The 2 lowermost leaves of the embryo plant in the seeds of the greater part of plants which are from that circumstance called dicotyledonous plants, in some plants becoming leaves and in others appearing to supply nourishment to the plant. 16 *Feb.* 15.
- In *Pyrus* *Malus* they are 2 and 3, the 3rd sometimes lying between the 2 outer. 4 *Mar.* 15.
- Granular, and the granules mostly destructible by pressure between glasses.
- Granules not destructible by pressure between glasses. *Obs.* 8198.
- Lanceolate in *Parsonsia spiralis*. *Obs.* 10026. Seeds from Wright from Calcutta garden.
- Longitudinally reniform in *Hedysarum gangeticum*. *Obs.* 9765.

Transversely pandurate in *Bignonia Catalpa*. *Obs.* 10072, and *B. radicans*. *Obs.* 9409.

Pinnatifid in *Erodium moschatum*. *Obs.* 7588, and *Geranium moschatum*. *L. sp.* ii. 951.

Tripartite in *Lepidium sativum*. *Obs.* 4647, in *L. virginicum* *Obs.* 4648, and *L. Iberis*. *Obs.* 7077.

Mostly erect, but some deflex and then replicate and folded round the rostellum in *Pentapetes phoenicea*. *Obs.* 9990.

Generally exactly parallel, the margins coinciding, but in *Lunaria annua* the upper and lower margins extend beyond those of the opposit cotyledon, appearing as if they had slipped from their usual position.— In *Chelone campanuloides*. *Obs.* 10137, they are patulous in the plane of the cotyledons, only a small portion of one lapping over the other.

Transparent and very thin in *Mirabilis Jalapa*. *Obs.* 5200.

Cartilagineo-carneous in *Tamarindus indica*.

164. *Cotyliformis*. Cotylate. Like a shallow saucer with sides not incurvd. *From Sal. R. in lin. tr.* v. 138. t. 5. f. 7. The term I have employed is I think patellate.

165. *Crateriformis*. Craterine. Somewhat like calathiformis but not so much bellying out and rather approaching to infundibulate. *Sal. R. in lin. tr.* v. 138. t. 5. f. 8. The sides in the fig. are straight and there is no tube as in infundibulate.

166. *Crenae*. Crenatures. The sinuses in the margin of a crenate leaf.

167. *Crenatio*. Crenation. The projecting lobes between the sinuses of a crenate leaf.

168. *Crenatus*. Crenate. *Leaf*. The margin with incisions pointing towards neither extremity. *L. am. n.* 194. *Phil. bot.* 44. t. 1. f. 38, *cop. in Bot. arr.* t. 7. f. 38.

*Corolla*. As in *Linum*. *Phil. bot.* 64.

*Acute crenatus*. Acutely crenate. Crenations acute. *Phil. bot.* 44. t. 1. f. 35 *cop. in Bot. arr.* t. 7. f. 34.

*Duplicato-crenatus*. Doubly crenate. *Phil. bot.* 44. t. 1. f. 33, *cop. in Bot. arr.* t. 7. f. 33. Each crenation crenate.

*Obtuse crenatus*. Obtusely crenate; crenations obtuse. *Phil. bot.* 44. t. 1. f. 36, *cop. in Bot. arr.* t. 7. f. 35.

169. *Crispis*. Curld. *Leaf*. When the circumference is larger than that the disc can admit it to be simply undulate. *Phil. bot.* 45. Leaves become curld when the circumference is so increased that it flows round the disc like an undate limb. *Phil. bot.* 217. t. 1. f. 39.
170. *Croceus*. Saffroncolourd. *Phil. bot.* 244. Reddish orange.
171. *Cruciformis*. Cruciform. *Corolla* composed of four equal patent (or erect as in *Arabis thaliana*. and *Turritis*.) petals. *Phil. bot.* 52. t. 7. f. 144, *cop. in Bot. arr.* t. 4. f. 11.  
*Stigma* as in *Penaea*. *Phil. bot.* 68.
172. *Crustosus*. Crustose. *Seedvessel*. Of a spongy texture, easily breaking, similar to the crust of bread or pyecrust, as in the nut of *Litorea lacustris*. *Obs.* 10241, and seeds of *Suitenia Mahogani*. *Obs.* 10310.
173. *Cucullatus*. Cucullate. *Leaf*. When the sides approach each other very near towards the base, while upwards they are expanded, as in *Geranium cucullatum*. *Phil. bot.* 219; *am. n.* 251.
174. *Cucullus*. A pedunculate nectarium of *Aconitum*. *Wild. bot.* 89. f. 135. (f. 196 is a nectarium of *Hel-leborus*)—Nectaria cornuta. *Phil. bot.* 300. t. 7. f. 146. Willdenow applies the same term also to one of the organs of *Asclepias*. *bot.* 480. t. 4. f. 69. See *Smith in cycl. x.*
175. *Culmus*. Culm. A trunk peculiar to Gramina. *L. am. n.* 18. An unnecessary term.
176. *Cultratus*. Cultrate. When a flat or flattish body becomes gradually thin as the blade of a knife. As in the border of the seeds of *Rhinanthus cristatus*. *Obs.* 4786, and in the capsules of *Malva moschata* and *M. sylvestris*. *Obs.* 1587. 4039.
177. *Cuneatus*. Cuneate. (*Sims in Bot. mag.*) *Leaf*. Gradually narrowing towards the base. *L. am. n.* 164. Whose longitudinal exceeds its transverse diameter, growing gradually narrower downwards. *Phil. bot.* 42. t. 1. f. 45. *Bot. arr.* t. 8. f. 65. *Richard A.* t. 3. f. 12. *Corolla*. Segments of, as in *Vinea minor*, major. *Filaments* as in *Thalictrum*. *Phil. bot.* 65. *Cuneiformis*. *L.*
178. *Cuspidatus*. Cuspidate. *Leaf*. Terminated by a se-

- taceous apex. *L. am. n.* 212. Acuminate, but the point rather rigid. *Phil. bot.* 219.
179. *Cyathiformis*. Cyathine. *Corolla* cylindrical, but a little dilated upwards. *Phil. bot.* 223. More or less ob-conic and concave. *Sal. R. in lin. tr. v.* 138. *t.* 5. *f.* 9.  
*Calyx*. *Polemonium*. *L. gen.* 87. *n.* 217.
180. *Cylindricas*. Cylindric. *Spike*. Nearly terete. *L. am. n.* 467.  
*Style*. As in *Monotropa*. *Phil. bot.* 67.
181. *Cyma*. A receptacle (rather a compound peduncle) lengthend out into several peduncles rising to the same height proceeding from a common center, with partial peduncles arising irregularly from the primary peduncles, as in *Viburnum Opulus*, and *Cornus*. *Phil. bot.* 55. 79. *Bot. arr. t.* 6. *f.* 10.—Composed of branched peduncles proceeding from one point, but whose secondary branches are irregular.—*Lee t.* 12. *f.* 14.
182. *Cymosus*. Cymose. *Flower*. In which the receptacle, (rather compound peduncle) is divided into peduncles proceeding from a center, but with pedicles arising without any regular order. *Phil. bot.* 76.
183. *Daedaleus*. Filigreed. *Leaf*. Both flexuose and lacerate. *L. am. n.* 204.
184. *Decaphyllus*. Decaphyllous. *Involucrum* with ten bracteae as in *Artemisia*. *Phil. bot.* 79.  
*Calyx* with 10 phylla, as in *Hibiscus*. *Phil. bot.* 62.
- 184.\**Decemdentatus*. Decemdentate. With 10 teeth as in *Cerastium* and *Primula*. *Phil. bot.* 69.
185. *Decemfidus*. Decemfid. *Calyx* as in *Potentilla* and *Fragaria*. *Phil. bot.* 63.
186. *Decemlocularis*. Decemlocular. *Seedvessel* with ten cells as in *Linum*. *Phil. bot.* 69.
187. *Deciduus*. Deciduous. *Buds*, as in *Dentaria Ornithogalum* *Lilium Saxifraga*. *Phil. bot.* 51.  
*Ramuli* falling off at the end of a year? as in *Thuia* and Mr. R. Salisbury adds *Cupressus* and *Averrhoa acida*. See *Sal. R. hort.* 318.
- Leaves*. *Stipulae*. *Bracteae*. Falling off at the end of a summer. *L. am. n.* 273. 332. 396.
- Stipulae* as in *Prunus Padus*, *Prunus Cerasus* and *Amygdalus communis*. *Phil. bot.* 163.

- Calyx.** Falling off with the corolla, as in *Berberis* and the class *Tetradynamia*. *Phil. bot.* 68.
- Corolla.** Falling off at the same time with the stamina and pistil, as in most plants. *Phil. bot.* 65.
188. **Declinatus.** Declinate. *Trunk. Peduncle.* Bowed downwards. *L. am. n.* 34. 425.
- Leaf.** Bent downwards as the keel of a ship. *Phil. bot.* 219.—As the pinnae of *Polypodium Lonchitis*.
- Stamina and style** as in *Narcissus Bulbocodium*. *L. sp. i.* 417.—Inclining towards the lower part of the flower. *Gray i.* 141. 154. *Willd. bot.* 97. n. 12.—Qui retombe en formant l'arc. *Dec. theur.* 479.
189. **Decompositus.** Decomposed. **Leaf.** A petiole once divided connecting together several folioles. *Phil. bot.* 47.
190. **Decumbens.** Decumbent. **Flower.** As in *Cassia* and the class *Diadelphia*. *Phil. bot.* 61.—Stamina and style declinate to the lower side. *Phil. bot.* 60.
191. **Decurrens.** Decurrent. **Leaf. Petiole. Stipula.** When the base is extended downwards along the stem, (or branch), as in *Verbesina*, and some species of *Carduus* and *Sphæranthus*. *L. am. n.* 153. 313. 387. *Phil. bot.* 49. t. 3. f. 95, *cop. in Bot. arr. t. 9. f. 4. e.*
192. **Decussatus.** Decussate. **Leaves.** Opposit but growing in such directions that if the stem or branch be viewed with the end opposit to the eye, they appear to point four different ways. *Phil. bot.* 219; *am. n.* 125.
193. **Deflexus.** Deflex. **Branches.** Bowed downwards. *L. am. n.* 104.
194. **Dehiscens.** Opening. **Anthera.** Opening at the side, as in *Leucoium* and most plants. Opening at the apex, as in *Galanthus* and *Kiggelaria*. Opening from the base towards the apex; as in *Epimedium* and *Leontice*. *Phil. bot.* 66.
195. **Deltoides.** Deltoid. **Leaf.** Rhombic, but the 2 lateral angles nearer the base. *L. am. n.* 173; *phil. bot.* 43. t. 1. f. 59, a fig. of a leaf of *Mesembryanthus deltoidea*, but not at all expressing the true shape of a deltoid leaf. In *Bot. arr. t. 7. f. 45* is given in place of it a leaf of *Populus nigra* which I sent to illustrate the meaning of the term, Linnæus having characterised that



species "foliis deltaïdibus acuminatis," but the shape of a masons trowel will perhaps afford the most exact idea of the Linnaean term.

196. *Demersus*. Immersed. *Leaf*. Lying beneath the surface of water. *Phil. bot.* 49.

197. *Dentatus*. Dentate. *Root*. Necklaoeshaped, consisting of internodia connected as the links of a chain. *L. am. n.* 10.

*Leaf*. The margin with horizontal points of the same consistence as the leaf at some distance from each other. *Phil. bot.* 44. t. 1. f. 30, *cop. in Bot. arr. t. 7. f. 30*. *Willd. bot.* 32. t. 2. f. 32 is rather serrate.

*Leaf. Stipula*. The margin with patent remote prominences. *L. am. n.* 197. 348.

*Calyx* described as bidentate tridentate quadridentate quinquedentate multidentate in *L. gen.* but really bifid trifid quadrifid quinquefid multifid, the segments being triangular. See *Willd. bot.* 75. n. 9.

198. *Dependens*. Pendant. *Leaf*. Pointing straight down to the ground. *Phil. bot.* 49; *am. n.* 138.

199. *Depressus*. Depressd. *Leaf*. Pulpy, the disc more flattend than the sides. *L. am. n.* 259. *Phil. bot.* 46.

*Stigma*. Obliquely depressd, as in *Actæa* and *Daphne*. *Phil. bot.* 68.

200. *Diaspermum*. Diasperm. A fleshy substance of a granular texture, interposed in some seeds between the corculum and perisperm, readily separable from the perisperm and corculum. It seems to extend to the hilum, and may possibly convey moisture to the corculum. Examind in *Triticum aestivum*, *Hordeum distichum* and *jubatum*, *Avena sativa*, *Canna indica*, *Zingiber Cassumunar*. *Obs.* 10008 and *Kaempferia pandurata*. *Obs.* 10009.

It seems to be a species of perisperm, and the above seeds may be described as having a double perisperm; a fleshy or inner and a farinaceous or outer perisperm. 27 Feb. 15.

Its structure in *Canna indica* is fleshy and granular as that of the majority of perisperms, while that of the perisperm is fibrous. *Obs.* 9296.

It has no connexion with the hilum in *Zingiber Cassumunar* and *Kaempferia pandurata*.

201. *Dichotomus*. Dichotomous. *Stem*. Successively divided into 2 parts. *Phil. bot.* 40. *L. am.* 84.—which point opposit ways, as in *Viscum album*.  
*Style*. As in *Cordia*. *Phil. bot.* 67.
202. *Dicotyledoneus*. Dicotyledonous. *Plants. Seed*. When the corculum consists of a plumula rostellum and 2 opposit cotyledons.
203. *Didymus*. Didymous. *Pollen* as in *Symphytum*. *Phil. bot.* 66.
204. *Didynamia*. Tetrastynamia. Pentastynamia equally proper, in the plants of the class Decandria, where 5 stamina are longer than the other 5, flowering before or after. See *Lychnis*.
205. *Difformis*. *Leaves*. Of different shapes on the same plant. *Phil. bot.* 244.  
*Corolla*. The flowers of the same umbel of different shapes.
206. *Diffusus*. Diffuse. *Trunk. Stem. Branches* and ramuli patent. *Phil. bot.* 40. *L. am. n.* 37.  
*Panicle*. When the pedicles are divaricate. *Phil. bot.* 41.
207. *Digitatus*. Digitate. *Leaf*. A petiole supporting more than 3 folioles at the end. *L. am. n.* 280. *Phil. bot.* 47. *t.* 2. *f.* 66, too like a partite leaf, and *cop. in Bot. arr. t.* 7. *f.* 48 where it approaches rather to the structure of a pinnate leaf.—*Richard, A. elem.* 515. *t.* 4. *f.* 6. *Gray i.* 241. *t.* 5. *f.* 8.
208. *Dilatatus*. Dilated. *Willd. bot.* 92. *n.* 4. A flat substance becoming broader upwards. Opposed to attenuate.
209. *Dimidiato* prefixd to an adjective as dimidiato-cordate implies that it is the longitudinal half of the figure described, as the half of a cordate leaf cut lengthways.
210. *Dimidiatus*. Halved. *Capitulum*. Round on one side and flat on the other. *L. am. n.* 457.  
*Involucellum*. As in *Æthusa Coriandrum* and *Sanicula*. *Phil. bot.* 79.
211. *Dipetalus*. *Corolla* with 2 petals, as in *Circea* and *Commelina*. *Phil. bot.* 64.
212. *Diphyllus*. Diphyllous. *Peduncle* with 2 leaves, as in *Gomphrena globosa*. *Phil. bot.* 218.

*Involucrum*. With 2 bracteae, as in Euphorbia. *Phil. bot.* 64.

*Spatha* as in Stratiotes. *Phil. bot.* 64.

*Calyx*. With 2 phylla, as in Papaver and Fumaria. *Phil. bot.* 62.

213. *Discus*. Disc. The collection of tubular flowers composing the central part of a radiate anthodium. *Phil. bot.* 223. *Dec. theor.* 387. *Gray* i, 115.

214. *Dispermus*. Dispermous. *Fruit* with 2 seeds, as in the Umbellatae and Stellatae. *Phil. bot.* 70.

215. *Dispersus*. Dispersd. Widely separated. As the flowers of *Milium effusum*. *L. sp.* i. 90. Opposed to confertus.

216. *Dissepimentum*. Dissepiment. A part by which the fruit is separated internally into several cells. *Phil. bot.* 53. *t.* 8. *f.* 160. *b*; *cop. in Bot. arr.* *t.* 5. *f.* 14. *b*.

As thick as the breadth of the valves in *Pterospermum semisagittatum*. *Obs.* 11433.

217. *Distans*. Distant. *Verticillus*. Peduncles remote. *L. am.* n. 453. Distant from each other. *Willd. bot.* 66.

218. *Distichus*. Distichous. *Stem*. Branches coming out in a horizontal direction. *Phil. bot.* 40.

*Branches*. *Leaves*. When all the leaves point from only two sides of a branch, as in *Pinus Abies* and *Lonicera Diervilla*. *Phil. bot.* 48, tho inserted on all sides. *L. am.* n. 114.

*Spike*. Flowers looking two different ways. *Phil. bot.* 41.

219. *Distinctus*. Distinct. *Folioles* not touching each other, as in *Tribulus terrestris*.

*Flowers*. *L. a Murr.* 204. *par.* 5.

Opposed to aggregate.

220. *Divaricatus*. Divaricate. Receding from the trunk at an obtuse angle. *L. am.* n. 103.

221. *Divergens*. Diverging. *Branches*. Inserted into the stem at a right angle. *L. am.* n. 102.

222. *Divisus*. Divided. *Spine*. Partite at the end. *L. am.* n. 392.

223. *Dolabriformis*. Hatchetshaped. *Leaf*. Compressed roundish obtuse, outwards gibbous with an acute edge, below rather terete, as in some species of *Mesembryanthus*. *Phil. bot.* 46. *t.* 1. *f.* 57.

224. *Drupa*. Drupe. A seedvessel without a valve, full, containing a nut. *Phil. bot.* 63. *t.* 8. *f.* 157, *cop. in Bot. arr. t.* 6. *f.* 21. *Guertn.* ii. *t.* 93. *f.* 2, *b, c, and fig.* 3. *c, cop. in Gray i. t.* 15. *f.* 1. 2.—A seedvessel without a valve, containing one or more nuts, as in *Amygdalus communis* *Olea europaea* *Crataegus monogyna* and *Mespilus germanica*. 18 Feb. 17.

Is it distinguishable from *Bacca*. Compare the osseous seeds of *Vaccinium resinosum*. *Obs.* 10676 and *Amygdalus communis*.

225. *Ductus polliniferi*. Polliniferous ducts. Vessels visible with the aid of a microscope in the style and its branches and in the stigmata.

226. *Duodecemfidus*. Duodecemfid. *Calyx* as in *Lythrum*. *Phil. bot.* 63.

227. *Duplicato-serratus*. Duplicato-serrate, as in the leaves of *Carpinus Betulus*.

228. *Duplicatus*. Doubled. *Bulb* as in *Fritillaria*. *Phil. bot.* 102.

*Corolla*. When there are 2 (and sometimes 3 one within the other and) the stamina not excluded, as in (*Primula elatior*, *officinalis*, *acaulis*, and *Polyanthus*.) *Phil. bot.* 80.

229. *Ecalyculatus*. Ecalyculate. *Capsula monosperma clausa*. Capsule monospermous not opening. Without a calyx, as in *Tanacetum*. *Phil. bot.* 70.

230. *Echinatus*. Echinate. *Pollen* as in *Helianthus*. *Phil. bot.* 66.

*Seedvessel*. Beset on all sides with prickles or spines like a hedgehog. *Phil. bot.* 224.

*Seed*. As in *Myosotis Lappula*. *Phil. bot.* 70.

231. *Eglandulatus*. Without glands. *Leaves*. *L. sp.* n. 1503. n. 22.

232. *Ellipticus*. Elliptic. *Leaf*. Lanceolate, but of the breadth of an ovate leaf. *L. am. n.* 168. *Giseke* 50. See *Sophora alba*. *L. a Murr.* 391, and *Justicia nasuta* and the segments of the corolla of *Trientalis europaea*.

233. *Elongatus*. Elongate. *Link. phil.* 17. *Dec. theor.* 509. When a part is extended beyond another, as the intermediate segment of the lower lip of the corolla of *Monarda*.

234. *Emarginatus*. Emarginate. *Leaf*. Terminated by a crenature. *Phil. bot.* 44. *t.* 1. *f.* 45; *am. n.* 206.  
*Filaments* as in *Allium Porrum*. *Phil. bot.* 65.  
*Stigma* as in *Melica*. *Phil. bot.* 68.
235. *Enervis*. Ribless. *Leaf*. Opposed to nervose. *L. am. n.* 224; *phil.* 219. 233.
236. *Enneapetalus*. Corolla of 9 petals, as in *Thea Magnolia* and *Liriodendrum*. *Phil. bot.* 64.
237. *Enodis*. *Trunk*. Continuous without knots. *L. am. n.* 78.  
*Culmus*. Regularly continued without any knots interposed. *Phil. bot.* 40.
238. *Ensatus*. Ensate. *Leaf*. *Filament*. Attenuate from the base to the apex. *L.*  
*Ensiformis*. *Phil. bot.* 46; *am. n.* 269; *mant.* 28.  
 Floral leaves of *Cyperus alternifolius*.—See also *Asphodelus ramosus*. *Linn. sp. i.* 444, and *Aloe verrucosa*. *Hort. kew.* i. 468.
239. *Equitans*. Equitant. *Leaves within the bud*. When the sides of a leaf approach towards each other in a parallel direction, the inner leaves being inclosed within the outer. *Phil. bot.* 108. *t.* 10. *f.* 5. As in *Hemerocallis* *Poa* *Iris* *Acorus* *Carex*. *p.* 107. *Crinum asiaticum*. *L. mant.* 363.
240. *Erectus*. Erect. *Trunk*. *Branch*. *Leaf*. *Petiole*. *Stipula*. *Peduncle*. *Racemus*. Rising nearly perpendicularly. *L. am. n.* 28. 100. 127. 316. 343. 421. 485.  
*Leaf*. Inserted into the stem at a very acute angle. *Phil. bot.* 49. *t.* 3. *f.* 83, *cop. in Bot. arr. t.* 9. *f.* 5. *b.*  
*Calyx*. As in *Primula* and *Nicotiana*. *Phil. bot.* 63.  
*Anthera*. When fixed to the filament by its base. *Phil. bot.* 223. Opposed to *incumbens* and *versatilis*.
241. *Erosus*. Erosee. *Leaf*. Sinuate, with the sinuses very small obtuse and unequal, and the segments unequal. *Phil. bot.* 44. *t.* 1. *f.* 21, *cop. in Bot. arr. t.* 7. *f.* 21.  
*Petals* as in *Adonis autumnalis*.
242. *Exalbuminosus*. Exalbuminous. *Seed* without a perisperm.
243. *Exertus*. Projecting. *Stamina* projecting beyond the mouth of the corolla in many species of *Erica*.—*Gray* i. 141. *t.* 9. *f.* 17.

*Coraculum*. When the rostellum projects from the cotyledons in such manner that an angle is formed between them.

244. *Extrafoliaceus*. Extrafoliaceous. *Stipula*. *Peduncle*. Placed below the leaf. *L. am. n.* 328. 412. As in the Diadelphia class, *Betula alba*, *B. Alnus* and *Tilia*. *Phil. bot.* 108.

245. *Farctus*. Full. Opposed to tubular. *Phil. bot.* 238.

246. *Farinosus*. (*Link.* 15.) Mealy. Sprinkled with powdery particles, as the leaves and flowers of most of the varieties of *Primula Auricula*.

247. *Fascicularis*. Fascioulate. *Root*. Consisting of fleshy parts connected by a sessile base. *L. am. n.* 18. Composed of fleshy parts connected at the base without the intervention of a threadlike part, as in *Ranunculus asiaticus*.

248. *Fasciculatus*. Fascioulate. *Root* as in *Pæonia*. *Phil. bot.* 102.

*Leaves*. Several proceeding from the same point. *L. am. n.* 119, as in *Pinus Larix*, *Phil. bot.* 48. t. 3. f. 107.—As in *Pinus Strobilus*.

249. *Fasciculus*. Consisting of several subsessile flowers set close together, parallel and of the same height, (inserted one above another) as in *Dianthus barbatus*, (*D. carthusianorum* and *D. Armeria*.) *L. am. n.* 460; *Phil. bot.* 41; a *Spreng.* 85. t. 8. f. 12. *Willd. bot.* 70. n. 58. *Dec. theor.* 386. *Gray* i. 113.—It is a depressed corymbus and is perhaps a superfluous term.

250. *Fastigiatus*. Fastigiate. *Trunk*. With branches of the same height. *L. am. n.* 91.

*Flowers*. When the fructifications are disposed in a fasciculus, supported on peduncles which rising to the same height appear as if they were cut horizontally, as in many species of *Silene* and *Dianthus*, *Phil. bot.* 221.

251. *Faus*. Throat. An expansion in the tube of the corolla. *Phil. bot.* 223.

252. *Favosus*. Favose. A surface divided into cells by perpendicular partitions, as a honeycomb, as in seeds of *Antirrhinum Elatine*. 25 *May*.

253. *Femineus*. Female. *Plant*. Bearing only female flowers. *Phil. bot.* 93.

*Flowers.* Containing a stigma or stigmata. *Phil. bot.* 93.

254. *Fenestratus.* Latticed, as the segments of the corolla of *Ixia crocata*.

255. *Fibrosus.* Fibrous. *Root*, consisting wholly of fibres. *Phil. bot.* 38; *am. n.* 4.

256. *Ferrugineus.* Ferruginous. *Phil. bot.* 244. Of the colour of the rust of iron.

257. *Ferularis.* Ferulashaped. *Corculum of a seed*, the rostellum of which projects from the base of the cotyledons so as to make the rostellum appear like a handle inserted into the margin of the cotyledon, as in *Pyrus Malus* and *Nerium grandiflorum*. *Obs.* 10204.

258. *Filamentum.* Filament. That part of a stamen which supports and connects the anthera to the flower. *Phil. bot.* 53. *t.* 8. *f.* 150. *a*; *f.* 149. *e*; the former *cop. in Bot. arr. t.* 3. 6. *g.* *Bot. arr. t.* 3. *f.* 3. *h*; *f.* 2. *b.*

Articulated in *Euphorbia Lathyris*. *Obs.* 9487.

Generally more than 1 and distinct, in some genera single and annular like a monopetalous corolla and divided into segments bearing antherae, as in *Celosia argentea*, sometimes every other segment bearing an anthera, as in other *Celosias* and in the *Malvaceae* multifid.

Permanent in *Helonias bulbata* and becoming rigid and surrounding the seed like bristles in *Petiveria alliacea*. See *Swartz. obs.* 139.

259. *Filiformis.* Filiform. *Peduncle.* Of an equal thickness throughout. *L. am. n.* 436.

*Stem of Sison Amomum.* *L. mant.* 355.

260. *Filum.* Thread. In *Corypha umbraculifera* it is the margin of the foliole spontaneously separating.

261. *Fissus.* Cloven. *Leaf. Stipula. (Calyx. Corolla.)* Divided by linear sinuses with straight margins, *L. am. n.* 183. 349. *Phil. bot.* 43. *t.* 1. *f.* 16, *cop. in Bot. arr. t.* 7. *f.* 16, is a representation of obcordate. *Fissus bifidus trifidus &c.* to *multifidus* in this work implies aoristically that the part is divided into 2 or more portions, *partitus bipartitus &c.* that the part is divided nearly to the base into 2 or more segments, *semibifidus &c.* that it is divided to the middle, and *subbifidus &c.*

that it is slightly divided into 2 or more shallow segments. When it is divided into segments whose margins are portions of curves it is called lobate. See bilobus trilobus &c.

262. *Fistulosus*. *Fistular. Trunk*. Tubular within. *L. am. n. 27*. Forming a hollow cylinder. *Lipp.*

*Leaf*. As in *Oenanthe fistulosa. Berk.*

*Scapus* as in *Leontodon*.

263. *Flabelliformis*. *Flabellate. Leaf*. Of the shape of an expanded fan or a quadrant of an orbicular body. See *Bot. mat. med. ii. 388. 389* in *Chrysosplenium* and *Ginkgo biloba*.—*Gray i. 65. Willd. bot. 27. n. 13*, with an erroneous definition.

*Stigma*. The lower segment in *Pinguicula vulgaris*.

*Obs. 4866.*

264. *Flaccidus*. *Flaccid. Peduncle*. When so weak that it hangs down merely from the weight of the flower.

*Phil. bot. 221. L. am. n. 427.*

265. *Flammeus*. *Flamecoloured. Phil. bot. 244.*

266. *Flavus*. *Lemoncoloured. Phil. bot. 244.* Linnæus places it between luteus and sulphureus. I apprehend flavus to be of the colour of gold coin, gold used in gilding, and of most of the ores of gold. Some gold ores are of the colour of toy gold used in seals and watches, which approaches to that of copper.

*Drupe* as in *Prunus fructu flavo. Phil. bot. 212.*

*Berry* as *Citrus Limon*.

267. *Flexuosus*. *Flexuose. Trunk*. Passing in a direction between one bud and another. *L. am. n. 44.*

*Stem*. Bent at each joint in a different direction, as in *Ptelea. Phil. bot. 39.*

*Peduncle*. With a flexure between one flower and another. *L. am. n. 431*, as in *Aira flexuosa. Phil. bot. 222.*

*Veins* in the involucre of *Nephrodium spinulosum*.

268. *Flores flosculosi*. *Flosculous flowers*. When the umbels of the umbelliferae consist of flowers all of the same shape and size, as in *Conium Bunium Sium Angelica Phellandrium Cicuta Apium Pimpinella* and the greater number of that natural order.

269. *Flos*. *Flower*. The organ or one of the organs by means of which living seeds are produced.—Consisting



of an anthera or stigma, whether contained or not within the usual integuments *Phil. bot.* 56 of calyx or corolla or both. Its essential parts are sometimes not only at a distance from each other on the same plant but even on different plants,

*Flos nudus bracteatus calycinus corollinus incompletus completus* all which see.

*Flowers* generally grow on branches, sometimes on the trunk, as in *Carica Papaya* sometimes on the petiole of a pinnate leaf as in *Phyllanthus Niruri*, sometimes on petioles as in *Hibiscus Moscheutos*.

*Flowering of plants.* Most plants flower every year, *Gentiana pannonica* according to *Clus. pann.* 279, every other, *Ophrys spiralis* according to Curtis I think every 6th or 7th year, but according to my observation more frequently.

270. *Foliaceus.* Foliaceous. *Glandula. Utriculus.* Inserted into a leaf. *L. am. n.* 374, as in *Salix. Phil. bot.* 111.

271. *Foliaris. Spine. Cirrhus.* Inserted into a leaf. *L. am. n.* 351. 890.

272. *Foliatus.* Foliate. *Stem. Peduncle. Racemus.* Furnishd with leaves. *L. am. n.* 56. 442. 488. *Phil. bot.* 39. when the flowers are intermixd with leaves.

273. *Foliolum.* Foliolate. A component part of a compound leaf. See *Phil. bot.* 47. *Willd. bot.* 44. n. 3. Linnaeus uses the same word to express the distinct parts of a calyx. *L. a Schreb.* 2. See *Phyllum*.

274. *Foliosus.* Leafy. *Capitulum. Spike.* Leaves intermixd with the flowers. *L. am. n.* 458. 474. This term admissible only where there is a profusion of leaves.

275. *Folium.* Leaf. (Organs by which plants) transpire and inhale (substances from the air and water,) as the lungs of quadrupeds, (and gills of fishes.) *Phil. bot.* 39. The organs of motion in a plant. *L. am.* 222. Linnaeus must mean I apprehend of its internal motion; but even in this sense the definition seems inaccurate, for when motion takes place after severe and long continued frost, it is excited in the vessels of the trunk and branches of deciduous trees even when no leaves are visible. The experiments of Priestley and Ingen-

houses have shewn the definition of the Phil. bot. to be more agreeable to facts.

**Deciduous**, perennial and permanent. Deciduous leaves remain for about 6 months, as those of deciduous trees, perennial for a year as those of evergreens; permanent as those which become a part of the bark, falling off only with portions of the branches as *Thuia* and *Cupressus*.

The upper surface generally faces the heavens, the lower the earth. *L. am.* vi. 226. The face of a leaf is the surface opposit to the stem or branch, and is generally of a darker green. The back is the lower surface opposit to the face, and is mostly paler. The reverse is the case in *Iris cepifolia*. In *Juniperus communis* the back is green and the face glaucous.

In vertical leaves the 2 sides are similar and at right angles with the stem and branches.

In *Viscum album* both surfaces are similar.

Its halves generally equal, but unequal in some species of *Eucalyptus*.

276. *Folium florale*. Floral leaf. Inserted near a flower.

*L. am. n.* 112. Inserted at the origin of a peduncle.

*Phil. bot.* 48. t. 91.

277. *Folliculus*. Follicle. A univalve, unilocular seed-vessel longitudinally opening on the inner side. *Phil. bot.* 58. t. 8. f. 158. *Willd. bot.* 103. t. 6. f. 170. *Gray* i. 189. t. 17. f. 12. *Gaertn.* i. p. xc; ii. 170—172. t. 117.

In *Vinca rosea* the seeds fixed to the suture. *Obs.* 11735.

Distended with pulp in *Tabernamontana*. *Lipp.* 42.

278. *Fornicatus*. Vaulted, as in the upper lip of the corolla of *Lamium*. *L. a Schreb.* 388.

279. *Foveolatus*. Foveolate. When there are hollows in a surface larger than dots, as in the seeds of *Euphorbia* *Peplus*.

280. *Frondosus*. Frondose. Flower. When the offspring of a proliferous flower shoots out into leaves, as in *Rosa* and *Anemone*. *Phil. bot.* 82.

281. *Frons*, a species of trunk composed of a union of branch leaf and sometimes of the fructification, as in the *Filices* and *Palmae*. *Phil. bot.* 42. t. 3. f. 108.

282. *Fructificatio*. Fructification, consisting of the flower and fruit. The parts essential to it are an anthera stigma and seed, (the former being sometimes not only in a distinct flower but on a distinct plant from the two latter.) *Phil. bot.* 55. 56. (A temporary part devoted to the generation of the plant; 52; *L. am.* n. 290; terminating the old and beginning the new plant. *Phil. bot.* 52.

283. *Fructus*. Fruit is distinguished by the seed whether covered or not by a seedvessel. *Phil. bot.* 56. 55. *Link. elem.* 315.

284. *Fruticosus*. Fruticose. *Trunk*. Perennial, consisting of several stems. *L. am.* n. 28.

285. *Fulcra*. Props. Parts of a plant intended for its more commodious support. *L. am.* n. 291, as stipulae bracteae thorns prickles tendrils glands and hairs. *Phil. bot.* 50. Doubtful whether the uses of any are known except tendrils with which only the definition accords. The rest are chiefly ornamental.

286. *Falcratus*. Proppd. *Stem*. With branches descending towards the root, as in some species of *Ficus*. *Phil. bot.* 40.

*Branches*. Furnishd with fulora. *L. am.* n. 163.

287. *Fulvus*. Fulvous. *Phil. bot.* 244. Of the colour of a lion.

288. *Fungosus*. Fungous. Of a spongy texture, generally of a rather firmer consistence than the pith of the stem of *Rubus idaeus*.

*Drape* as in *Cordia Sebestena*.

289. *Furcae*. Forks. Prickles divided into several. *L. am.* n. 384, as in *Berberis*, *Ribes*, *Grossularia*, *Gleditschia*, *Mesembryanthus*, *Barleria*, *Egonia*, keeping off animals. *Phil. bot.* 110.

290. *Fureatus*. Forked. *Scabrities* as in *Lavandula*. *Phil. bot.* 169.

291. *Fuscus*. Brown. *Phil. bot.* 244.

292. *Fusiformis*. Fusiform. *Root*. Terete, attenuate.— Mostly simple, attenuate. *L. am.* n. 6. Oblong thick attenuate, as in *Pastinaca*, *Daucus* and *Raphanus*. *Phil. bot.* t. 6. f. 129, *cap in Bot. arv.* t. 11. f. 6.

*Leaf*: In *Crossula rubra*. *L. a Marc.* 306.

293. *Geminateus*. Geminate. *Peduncle*. *L. am.* 416, referring to n. 295 which is bijugus.—Peduncle dichotomous each branch supporting a flower?

294. *Geminus*. In pairs. *Stipulae*. When one on each side as in the generality of plants where there are stipulae. *Phil. bot.* 106.—Two and two in pairs. *L. am.* n. 325.

295. *Gemma*. Bud. The winter quarters of a plant situated on the ascending caudex (or that part of the stem which is above ground.) They are composed either of stipulae petioles the rudiments of leaves or cortical scales. *Phil. bot.* 51. The winter quarters of a plant formed of the rudiments of the future leaves. *L. am.* 657.—The rudiment of a future branch continuous with the parent stem and producing a branch of the same nature with the parent stem.

296. *Geniculatus*. Geniculate. *Stem*. *Branch*. Bent at an angle more or less acute, resembling the flexure of the leg and thigh when the leg is bent back, as in *Agrostis melonifera*.—*Berk. L. am.* n. 43. *Dec. theor.* 479. *Gray* i. 39.

Style as in *Robinia Pseudacacia*.

*Arista* as in *Holcus mollis*.—*Willd. bot.* 63. In *Avena sativa*.

297. *Geniculum*. Joint. The part composed of the ends of two internodia.—*Griseb.* 144. *Gray* i. 39. *Phil. bot.* 223.

298. *Germen*. The rudiment of the unripe fruit as appearing in the flower. *Phil. bot.* 53. t. 8. f. 149. b; f. 152. a; *cop. in Bot. arr. t.* 8. f. 5. c; f. 7. i.

Often different from the fruit, being trilocular and polyspermous, when the fruit is a unilocular drupe with 1 and 2 seeds, as in *Styrax officinalis*. *Obs.* 10185, and *Guertn.* i. 284. t. 59.

Mostly erect, but pendant while the style is erect, in *Zostera marina*. *Obs.* 10967.

*Pedicellate* in *Dictamnus albus*. *Obs.* 9782, *Cassia*. *L. n. Schreb.* 277, *Bauhinia purpurea*. *Obs.* 11266, *Hedysarum Hypoglottis*. *Obs.* 9734, *Orobis sylvaticus*. *Obs.* 7423 and *Vicia sativa*. *Obs.* 6420.

299. *Gibbus*. Gibbous. Each surface convex, from the

intervention of a large quantity of pulp. *Phil. bot.* 48 ; *am. n.* 257.—More protuberant on one side.

300. *Glaber*. Glabrous. (*Evelyn by Hunt. i.* 114.) *Trunk. Stem. Leaf. Petiole &c.* Destitute of hairs and all scabrities. See glaber in Ainsw. and Faber.—*L. am. n.* 216. 66. 320. Surface slippery. *Phil. bot.* 40. 45. Surface without any inequality.

Opposed to hispid. *Chaerophyllum bulbosum. L. sp. i.* 370 ; to villose. *L. sp. ii.* 1446, *Salix* ; to pubescent. *Cerastium alpinum. L. succ.* 159 ; to tomentose. *Phil. bot.* 233. *Lycium europaeum. L. mant.* 48.

301. *Glandula*. Gland. A prominence excreting a fluid. *L. am. n.* 372, as in *Urena Ricinus latropha Passiflora Cassia Opulus Turnera Salix tetrandra, Helio-carpus, Bryonia zeylanica, Mimosa cornigera, Bauhinia aculeata, Prunus Armeniaca, Amygdalus communis* and *Morisonia* ; generally inserted into petioles serrature of leaves and young stipulae. *Phil. bot.* 50. *t. 5. f.* 119. *a, cop. in Bot. arr. t. 11. f. 1, a,* on pedicles ; *Phil. bot. t. 5. f. 118. c,* sessile, *cop. in Bot. arr. t. 10. f. 6. c.*

302. *Glandulosus*. Glandular. *Leaf.* When glands are fixd upon it either on the serratures as in many species of *Salix* and *Amygdalus Persica*, or on the back as in *Urena. Phil. bot.* 219.

*Prickles.* Secreting a liquor at the end, as in *Bauhinia aculeata. Phil. bot.* 220.

303. *Globosus*. Globose. *Root.* Roundish, with lateral radicles. *L. am. n.* 11, as in *Ranunculus bulbosus, Bunium Bulbocastanum* and some species of *Chaerophyllum. Phil. bot.* 102.

*Capitulum.* Quite round. *L. am. n.* 456.

*Calyx* as in *Cucubalus. Phil. bot.* 63.

*Anthera* as in *Mercurialis. Phil. bot.* 66.

*Stigma* as in *Primula Hottonia Linnaea* and *Lim- osella. Phil. bot.* 68.

*Berry* as in *Physalis Alkekengi. Obs.* 6048.

304. *Globularis*. Globular. *Scabrities.* In *Atriplex* and *Chenopodium. Phil. bot.* 109.

305. *Glochides*. Mucrones with several teeth at the end pointing backwards. *L. am. n.* 371. As on the sides of the lomenta of *Hedysarum diphyllum*, with 3 decur-

vate aculei at the end, *Obs.* 9711, on the nuces of *Myosotis Lappula*. *Obs.* 4968 and the calyx of *Acaena adscendens*. *Obs.* 9548, *Ancistrum*. *Gaertn.* i. 168. t. 32.

- 306. *Glomeratus*. Conglomerate composed of spikes variously compacted, *L. am. n.* 464, into a roundish body.
- 307. *Glomerulus*. Synonymous with capitulum. Used in the genus *Amaranthus*. *L. sp.* ii. 1403. *Glomus* and *glomulus* are the words in Faber and Ainsw.
- 308. *Gluma*. Glume. The calyx of a Gramen consisting of valves embracing each other. *Phil. bot.* 52. t. 7. f. 134. a. *Bot. arr.* i. 29. t. 2. When consisting of 2 glumes inclosing a flower one is apt to regard it with Linnaeus in his *gen. pl.* as a calyx and the flower as a corolla. But on examining the genera where the glumes contain 2 or more flowers one becomes convinced that it is not a calyx, but an involucre analogous to those of the class Syngenesia, consisting of 2, 1 or 3 bracteae at the base of 1, 2 or more flowers. See the following article.
- 309. *Glumoseus*. Glumose. An *aggregate flower* with a filiform receptacle with a common glume at the base, as in *Bromus Festuca Avena Arundo Briza Poa Aira Uniola Cynosurus Melica Elymus Lolium Triticum Secale Hordeum Scirpus Cyperus* and *Carex*. *Phil. bot.* 77. The 3 last genera I consider as composed of simple bracteae.
- 310. *Glutinositas*. Glutinosity. The quality of a glutinous liquor. *L. am. n.* 379.
- 311. *Gracilis*. Slender. Narrow in proportion to its length.
- 312. *Granulatus*. Root. Sprinkled over with fleshy particles. *L. am. n.* 16.
- 313. *Hami*. Hooks. Crooked acuminate mucrones. *Phil. bot.* 109; *am. n.* 366.
- 314. *Hamosus*. Hooked. *Setae*. Readily adhering to animals. *L. am. n.* 366.
- 315. *Hastatus*. Hastate. *Leaf*. Triangular, excavated at the base and the sides, angles patulous. *Phil. bot.* 43. t. 1. f. 15, *cop. in Bot. arr.* t. 7. f. 15. Sagittate, the

posterior angles divided by a sinus and projecting laterally. *L. am. n.* 180.

316. *Heptaphyllus*. Septembracteate. *Involucrum*. With 7 bracteae as in *Ligusticum*. *Phil. bot.* 79.

317. *Herbaceus*. Herbaceous. *Trunk*. The same as annual, not woody. *L. am. n.* 21. All above the root perishing every year. The root of every perennial herb produces a bud below the surface of the ground. *Phil. bot.* 37.

318. *Hermaphroditus*. Hermaphrodite. *Plant*. Bearing only hermaphrodite flowers. *Phil. bot.* 93.

*Flower*. Containing antherae and stigmata. *Phil. bot.* 93.

319. *Hexagonus*. Hexagonal. *Trunk* with 6 angles. *Phil. bot.* 40; *am. n.* 52.

320. *Hexapetalus*. *Corolla*. With 6 petals as in *Lilium Tulipa* and *Podophyllum*. *Phil. bot.* 64.

321. *Hexaphyllus*. Hexaphyllous. *Calyx* of 6 phylla, as in *Berberis*.

*Involucrum*. Sexbracteate. With 6 bracteae as in *Haemanthus*. *Phil. bot.* 64.

322. *Hilum*. The cicatrix on the outside of a seed, where it was fixed to the fruit. *Phil. bot.* 54, particularly obvious in *Cardiospermum Staphylea* (and *Vicia Faba*.) 71. *Bot. arr. t.* 6. *f.* 3. *e.*

It may be considered as an extension of the indusium, but in *Phaseolus nanus* it belongs to the tunic. In *Pirus Malus* it seems to be common to the tunic and indusium. In *Arum maculatum* there is a hilum of the tunic which is a conic spongy mass, and a hilum of the indusium which is a depression. *Obs.* 8377.\*

323. *Hirsutus*. Hirsute. *Corolla*. The surface of, as in *Menianthes* and *Gordonia Lasianthus*. *Phil. bot.* 64.

*Filaments* as in *Tradescantia Anthericum*. *Phil. bot.* 65.

324. *Hispidus*. Hispid. *Trunk. Leaf*. Sprinkled with rigid bristles. *L. am. n.* 71. 244. *Phil. bot.* 40. 45. *t.* 1. *f.* 49. The bristles too thick.

325. *Holosericeus*. Velvety. *Stem. Leaves. Corolla*. Closely beset with perpendicular flexible hairs.—As in the stem and leaves of *Polargonium odoratissimum*, the leaves

old & new 10 and 104 21 and 22 are discolored.

- of *P. lobatum*. *Obs.* 6858. *Ranunculus lanuginosus*. *L. sp.* i. 779 and *Cucubalus mollissimus*. *L. sp.* i. 593, and the corolla of *Phlomis Leonurus*. *L. mant.* 412.
326. *Horizontalis*. Horizontal. *Root*. Growing under ground in a transverse direction, as in *Iris*. *Phil. bot.* 88.
- Leaf*. Proceeding from the stem (or branch) at a right angle. *Phil. bot.* 49. *t.* 8. *f.* 85, *cop. in Bot. arr.* *t.* 9. *f.* 5. *d. L. am. n.* 132.
- Spikes* of *Cynosurus aegyptius*. *L. a Murr.* 117, which are divaricate. *Obs.* 6556.
327. *Horologium Floras*. *Phil. bot.* 274. 276. See *Rumph.* vi. 46. *par.* 8; 45. *par.* 4.
328. *Hyalinus*. Hyaline. *Phil. bot.* 243. A colour frequent in filaments and pistils. *Phil. bot.* 244, segments of the corolla of *Ixia crocata*. *L. a Murr.* 85, the base of which is colourless.—Transparent like pure glass. *Willd. bot.* 199.
- Aqueous and vitreous are given as shades of *hyalinus* in *Phil. bot.* 243.
329. *Hymenium*. The fructification of Fungi. *Pers. fung.* p. xi.
330. *Hypocrateriformis*. Hypocraterine. *Corolla*. (Limb) flat, placed on a tube. *Phil. bot.* 52. *t.* 7. *f.* 142, *cop. in Bot. arr.* *t.* 4. *f.* 1, and *cop. from*
- Flos hypocrateriformis*. *Tourn. inst.* *t.* 9.
331. *Imbricatus*. Imbricate. *Leaves in the bud*. When they lie one upon another parallel to each other with straight surfaces. *Phil. bot.* 105. *t.* 10. *f.* 6, as in *Syringa Ligustrum Phillyrea Hypericum Valantia Laurus Daphne Hippophæe Ruscus Mespilus germanica, Campanula* and *Polemonium*.
- Leaves*. Crowded and erect, so that one in some part or other covers another. *Phil. bot.* 49. *t.* 8. *f.* 106. *Bot. arr.* *t.* 9. *f.* 2.
- Leaves. Spike*. One (leaf or flower) covering half the other. *L. am. n.* 118. 469.
- Spathæ* as in *Musa*. *Phil. bot.* 64.
- Calyx*. (Phylla) lying one over another, as in *Camellia*. *Phil. bot.* 62.
- (*Anthodium*. *Bractæe*.) lying one over another as in *Hieracium* and *Sonchus*. *Phil. bot.* 62; *am. n.* 516.



posterior angles divided by a sinus and projecting laterally. *L. am. n.* 180.

316. *Heptaphyllus*. Septembracteate. *Involucrum*. With 7 bracteae as in *Ligusticum*. *Phil. bot.* 79.

317. *Herbaceus*. Herbaceous. *Trunk*. The same as annual, not woody. *L. am. n.* 21. All above the root perishing every year. The root of every perennial herb produces a bud below the surface of the ground. *Phil. bot.* 37.

318. *Hermaphroditus*. Hermaphrodite. *Plant*. Bearing only hermaphrodite flowers. *Phil. bot.* 93.

*Flower*. Containing antherae and stigmata. *Phil. bot.* 93.

319. *Hexagonus*. Hexagonal. *Trunk* with 6 angles. *Phil. bot.* 40; *am. n.* 52.

320. *Hexapetalus*. *Corolla*. With 6 petals as in *Lilium* *Tulipa* and *Podophyllum*. *Phil. bot.* 64.

321. *Hexaphyllus*. Hexaphyllous. *Calyx* of 6 phylla, as in *Berberis*.

*Involucrum*. Sexbracteate. With 6 bracteae as in *Haemanthus*. *Phil. bot.* 64.

322. *Hilum*. The cicatrix on the outside of a seed, where it was fixed to the fruit. *Phil. bot.* 54, particularly obvious in *Cardiospermum* *Staphylaea* (and *Vicia Faba*.) 71. *Bot. arr. t.* 6. *f.* 3. *e.*

It may be considered as an extension of the indusium, but in *Phaseolus nanus* it belongs to the tunic. In *Pirus Malus* it seems to be common to the tunic and indusium. In *Arum maculatum* there is a hilum of the tunic which is a conic spongy mass, and a hilum of the indusium which is a depression. *Obs.* 8377.\*

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*Filaments* as in *Tradescantia Anthericum*. *Phil. bot.* 65.

324. *Hispidus*. Hispid. *Trunk*. *Leaf*. Sprinkled with rigid bristles. *L. am. n.* 71. 244. *Phil. bot.* 40. 45. *t.* 1. *f.* 49. The bristles too thick.

325. *Holsericeus*. Velvety. *Stem*. *Leaves*. *Corolla*. Closely beset with perpendicular flexible hairs.—As in the stem and leaves of *Polygonum odoratum*, the leaves

- of *P. lobatum*. *Obs.* 6858, *Ranunculus lanuginosus*. *L. sp.* i. 779 and *Cucubalus mollissimus*. *L. sp.* i. 593, and the corolla of *Phlomis Leonurus*. *L. mant.* 412.
326. *Horizontalis*. Horizontal. *Root*. Growing under ground in a transverse direction, as in *Iris*. *Phil. bot.* 38.
- Leaf*. Proceeding from the stem (or branch) at a right angle. *Phil. bot.* 49. *t.* 3. *f.* 85, *cop. in Bot. arr.* *t.* 9. *f.* 5. *d.* *L. am. n.* 132.
- Spikes* of *Cynosurus aegyptius*. *L. a Murr.* 117, which are divaricate. *Obs.* 6556.
327. *Horologium Floras*. *Phil. bot.* 274. 276. See *Rumph.* vi. 46. *par.* 8; 45. *par.* 4.
328. *Hyalinus*. Hyaline. *Phil. bot.* 243. A colour frequent in filaments and pistils. *Phil. bot.* 244, segments of the corolla of *Ixia crocata*. *L. a Murr.* 85, the base of which is colourless.—Transparent like pure glass. *Willd. bot.* 199.
- Aqueous and vitreous are given as shades of *hyalinus* in *Phil. bot.* 243.
329. *Hymenium*. The fructification of Fungi. *Pers. fung.* p. xi.
330. *Hypocrateriformis*. Hypocraterine. *Corolla*. (Limb) flat, placed on a tube. *Phil. bot.* 52. *t.* 7. *f.* 142, *cop. in Bot. arr.* *t.* 4. *f.* 1, and *cop. from*
- Flos hypocrateriformis*. *Tourn. inst.* *t.* 9.
331. *Imbricatus*. Imbricate. *Leaves in the bud*. When they lie one upon another parallel to each other with straight surfaces. *Phil. bot.* 105. *t.* 10. *f.* 6, as in *Syringa Ligustrum Phillyrea Hypericum Valantia Laurus Daphne Hippophæ Ruscus Mespilus germanica, Campanula* and *Polemonium*.
- Leaves*. Crowded and erect, so that one in some part or other covers another. *Phil. bot.* 48. *t.* 3. *f.* 106. *Bot. arr.* *t.* 9. *f.* 2.
- Leaves. Spike*. One (leaf or flower) covering half the other. *L. am. n.* 118. 469.
- Spathæ* as in *Musa*. *Phil. bot.* 64.
- Calyx*. (Phylla) lying one over another, as in *Camelia*. *Phil. bot.* 62.
- (*Anthodium*, *Bractens*.) lying one over another as in *Hieracium* and *Sonchus*. *Phil. bot.* 62; *am. n.* 516.

332. *Inaequalis*. Unequal. (Composed of or divided into parts varying in size.)

*Calyx* as in *Cistus Helianthemum*. *Phil. bot.* 63.

*Corolla*. When the parts correspond in proportion but not in size, so that it becomes (appears like) a regular flower, as in *Butomus umbellatus*. *Phil. bot.* 223. 64.

*Filaments* as in *Daphne Lychnis* and *Saxifraga*. *Phil. bot.* 65.

333. *Inanis*. Empty. *Trunk*. Containing a spongy pith within. *L. am. n.* 26. If it contain pith it ought to be called spongiosus.

334. *Incanus*. Hoary. *Phil. bot.* 244. *Leaf*. Of a glaucous and almost silvery appearance arising from the nature of the surface. *Phil. bot.* 219. In *Hedysarum supinum* the hoariness seems occasioned by microscopic granules on the back of the folioles.

335. *Inappendiculatus*. Without appendages as in *Lupinus perennis*. *L. sp. ii.* 1014.

336. *Incarnatus*. Fleshcoloured. *Phil. bot.* 244, as in *Erica Tetralix*.

337. *Inclinatus*. Incline. *Stem* as in *Hedysarum gangeticum*. *L. a Murr.* 672.

*Stamina* of *Nicotiana*. *L. a Murr.* 221, which in *L. gen.* 99, are called adscendentia.

338. *Incompletus*. Incomplete. *Flower*, where either calyx or corolla is wanting. *Vaill. quoted in Phil. bot.* 76. Rather where there is a corolla but no calyx, as in *L. a Murr.* 388. *division 4*.

339. *Incrassatus*. Thickening. *Peduncle* gradually acquiring greater bulk at the end. *L. am. n.* 489. Becoming thicker towards the flower, as in *Cotula Tragopogon* and most cernuous flowers. *Phil. bot.* 222, opposed to fusiform. 238.

340. *Incumbens*. Incumbent. *Segments of leaves. Petals*. One lying over the other, as in *Aconitum pyrenaicum*. *L. sp. i.* 751, *Malva capensis*. *L. sp. ii.* 968 and *Erythronium*. *L. a Schreb.* 220.

*Anthera*. When fixed by one of its sides to the filament. *Phil. bot.* 223.

*Cotyledons*. When the side of one of the cotyledons lies against the rostellum. See *Subularia*. *Hort. kew.*

- ed. II. iv. 91, Melilotus italica. Obs. 6488 and Medicago lupulina. Obs. 1573 See Accumbens.*
341. *Incurvatus*. Incurvate. Nodding inwards. *L. am. n. 35.* Bowed inwards. *Hope.* First upright, then bowed. *Lipp. 12. n. 11.*
342. *Incurvus*. Crooked. *Hamusas* in *Arctium Xanthium Marrubium* and *Petiveria. Phil. bot. 110.*  
*Prickle.* Bent in. *L. am. n. 382.*
343. *Indivisus*. Undivided. Opposed to fissus, cloven. *Phil. bot. 288.* Seems synonymous with integer.
344. *Indusium*. Inner coat of a seed.  
 Investing the corculum perisperm and diasperm in *Helenia Alhugas. Obs. 10010.*  
 Generally commensurate with the tunic, but not so in *Bignonia Catalpa. Obs. 10072,* and *B. hispida,* enveloping only the corculum which is twice as small as the tunic. *Obs. 10073.*  
 Thicker than the tunic in *Euonymus europaeus. Obs. 3736,* *Helenia Alhugas. Obs. 10010,* and *Bauhinia acuminata. Obs. 10086.*  
 Granular in *Bauhinia acuminata. ib.*  
 Double in *Gossypium arboreum. Obs. 9991* and *Nepeta violacea. Obs. 9786.*  
 Striate in *Euonymus latifolius. Obs. 5429.*  
 Purple in *Potentilla norvegica. Obs. 9638. 9639.*  
 Tinging the perisperm purple in *Helenia Alhugas* when steepd. *Obs. 10010.*
345. *Inermis*. Unarm'd. *Leaf.* Without thorns. Opposed to thorny and pungent. *Phil. bot. 44.*
346. *Inflatus*. Inflated. *Calyx* as in *Physalis Cucubalus* and *Trifolium. Phil. bot. 86.*  
*Calyx of the fruit.* Distended, the contents not touching the sides, as in *Carex vesicaria. Obs. 5165.*  
*Seedvessel* not filld with seeds, but hollow like a blown bladder as in *Fumaria cirrrosa. Phil. bot. 228.* *Cardiospermum, Staphylaea, Phil. bot. 69, Colutea Fumaria* and *Cicer. 86.*
347. *Inflexus*. Inflex. *Leaf.* Bowed upwards towards the end. *L. am. n. 134.* Incurvated, bent upwards towards the stem (or branch.) *Phil. bot. 49. t. 3. f. 82, cop. in Rot. arr. t. 9. f. 5. a.*

348. *Inflorescentia*. Inflorescence, is the mode in which flowers are connected by their peduncles to the plant. *Phil. bot.* 112; *am. n.* 445.
349. *Infundibuliformis*. Infundibulate. *Corolla*. (Limb) conical, placed on a tube. *Phil. bot.* 52; *am. n.* 562. *Corolla* tubulate with a campanulate turbinate or hemispheric limb.  
*Flos infundibuliformis. Tourn. inst. t. 9, cop. in Bot. arr. t. 4. f. 7.*
350. *Insertus. Petiole*. Fixed perpendicularly on the branch. *L. am. n.* 311.
351. *Integer*. Entire. *Trunk* quite simple, with compact branches. *L. am. n.* 81 as the Lombardy Poplar.  
*Stem*. Very simple, with scarcely any branches. *Phil. bot.* 39.  
*Leaf*. Undivided, not having any sinus. *Phil. bot.* 44; *am. n.* 171.  
*Calyx* as in *Genista. Phil. bot.* 63.  
*Petal*. Spergula. *L. a Murr.* 390.
352. *Integerrimus*. Margin entire. *Leaf*. The extreme margin entire without any kind of indentation. *Phil. bot.* 44. *t. 1. f. 42, cop. in Bot. arr. t. 7, f. 41.*  
*Leaf. Stipula*. The margin linear, not in the least cut. *L. am. n.* 193. 345. *Calyx*. Entire as in most plants. *Phil. bot.* 63, meaning the margin of the segments.
353. *Interfoliaceus*. Interfoliaceous. *Peduncule*. Growing from the side of the stem between 2 opposit leaves, as in *Asclepias curassavica, nivea* &c.  
*Flowers*. Between opposit leaves, but placed alternately, as in *Asclepias. Phil. bot.* 112.
354. *Internodialis*. Internodial. Growing from the sides of the stem between the articulations, as in *Solanum Lycopersicum* and *S. nigrum*.
355. *Internodium*. The part interposed between 2 joints. *L. sp. ii.* 1033. *Gray i.* 39.  
*Articulus. Phil. bot.* 223.
356. *Interruptus*. Interrupted. *Spike*. The smaller spikes alternat, distant. *L. am. n.* 468.
357. *Interpetiolaris*. Interpetiolar. *Brown. Rab. in Asclepias Vincetoxicum.*

358. *Intrafoliaceus*. Intrafoliaceous. *Stipula*. *Peduncle*.

Placed above the leaf. *L. am. n.* 329, as in *Ficus* and *Morus*. *Phil. bot.* 108.

359. *Inversus*, Inverted. *Flower*. See *Resupinatus*.

*Corculum*. When the rostellum is upwards and the cotyledons point towards the root, and when the end of the rostellum points to the side opposit to the insertion of the seed, as in *Swertia perennis* according to Gaertner. See *Swertia* and *Gentiana*. The close affinity of these genera makes me unwilling to adopt his distinction of centripetal and centrifugal rostellums regarding such a distinction of no more weight than a corolla resupinate, 12 Jan. 19, and in *Hypericum Androsaemum* the rostellum is centrifugal. See *Gaertn.* i. 283 and in *Hypericum perforatum* centripetal. See *Gaertn.* i. 300.

360. *Involucellum*. An involucre at the base of an umbellula.—*L. sp.* i. 660. *Berk. Dec. theor.* 384. *Gray* i. 119.

*Involucreum partiale*. *Phil. bot.* 52. t. 7. f. 135. b, *cop. in Bot. arr. t. 6. f. 9. d.*

361. *Involucrum*. One or more bracteae which surround one or more flowers as in *Anemone* *L. sp.* i. 760, *Eryngium* and the *Compositae* as *Leontodon Taraxacum* and *Helianthus*, or surround the base of radiated peduncles and pedicles, as in the *Umbelliferae*. Linnaeus called it a calyx remote from the flower. *L. am. n.* 518, the calyx of an umbel remote from the flower. *Phil. bot.* 52. t. 7. f. 135, c, *cop. in Bot. arr. t. 6. f. 9. c.*

362. *Involutus*. Involute. *Leaves within the bud*. When the lateral margins are rolled spirally inwards. *Phil. bot.* 105. t. 10. f. 2, as in *Lonicera Diervilla*, *Evonymus*, *Rhamnus catharticus*, *Pirus communis*, *P. Malus*, *Populus* *Viola* *Plantago* *Alisma*, *Potamogeton natans*, *Nymphaea* *Humulus* *Urtica* *Anemone Hepatica*, *Sambucus* and *Staphylaea*. 106.

363. *Irregularis*. Irregular. *Corolla*. When the parts of the limb differ in figure size or proportion. *Phil. bot.* 223, as in *Aconitum* and *Lamium*. 64, (or are placed at unequal distances.)

*Filaments* as in *Lonicera* and the class *Didynamia*. *Phil. bot.* 65.

364. *Lacer.* Lacerate. *Leaf.* The margin variously divided, with segments of different shapes. *L. am. n.* 201. *Phil. bot.* 44.  
*Corolla.* When the limb is finely dissected. *Phil. bot.* 223.
365. *Laciniae.* Segments. *Leaf. Calyx. Corolla. Style.* Portions between fissures. See *Phil. bot.* 68.  
*Segmentum.* Gaultheria. *L. gen.* 220.
366. *Laciniatus.* Laciniate. *Leaf.* Cut into various parts of an indeterminate form. *L. am. n.* 191. Cut into various parts, and these again subdivided in an indeterminate manner. *Phil. bot.* 43. *t. 1. f. 24, cop. in Bot. arr. t. 7. f. 24,* as in Delphinium Consolida and Aconitum Napellus. The fig. rather pinnatifid with serrate segments.
367. *Lactescentia.* Lactescence. A liquor flowing out on wounding a plant, which is white in Euphorbia Papaver the Contortae Semiflosculosae (Leontodon Taraxacum) Campanula Lobelia Cactus Selinum and Rhus, and yellow in Chelidonium Boeconia Sanguinaria and Cambogia. *Phil. bot.* 111. Rumex Sanguineus is added by Linnaeus but the red juice does not flow out.
368. *Lacteus.* Milk-white. *Phil. bot.* 243.
369. *Lacunosus.* Pitted. *Leaf.* With depressions of the disc between the veins. *L. am. n.* 231.
370. *Laevis.* Levigate. *Trunk.* Of an even surface. *L. am. n.* 63. As the berry of Viscum. *L. a Schreb.* 680, and the stem of Eupatorium purpureum in the recent state, which striate when dried. *Obs.* 10122.  
 Opposed to angulatus. *L. a Murr.* 379. *n.* 30; to striatus. *L. sp. i.* 522. *n.* 26; *a Murr.* 515. *n.* 5; to squamosus. *L. sp. ii.* 1229. *sect.* \*\*\*\*; to lacunosus. *Dill. musc.* 191. *par.* 8; 147. *n.* 39.  
 Linnaeus too often uses it in place of glaber as in Phalaris paradoxa. *L. sp. ii.* 1665, where it is opposed to pubescens, in *L. a Murr.* 602. *n.* 1, opposed to hispidus; as also in *L. a Murr.* 280. *n.* 342. 1 opposed to hirtus in *L. sp. ii.* 1507. *n.* 37. 38; to hirsutus in *L. sp. i.* 411. 412; *fi.* 1469; to echinatus in *L. a Murr.* 978. *n.* 1212; to tomentosus in *L. sp. i.* 292. *n.* 14, and *L. fil. suppl.* 323 Crotalaria incanescens; to pilosus and striatus in *L. mant.* 451, Trifolium lappaceum; to

- soother, *L. sp. i.* 370. *n.* 2 ; 581. *n.* 3. In *Teucrium lucidum*, *L. q Murr.* 527, we have *caulis laevis* in the specific character opposed to *caules subpilosi* and *caulis glaber nec pilosus* in the descr. and in *Helianthus decapetalus* *caulis inferae laevis* is the specific character and *glaber* in the descr.
371. *Lamellaris*. Lamellar. Consisting of a substance with two surfaces and one margin, flat or only slightly concave, as the petal of a flower whose corolla consists of more than one petal, or the calyx of the Gramina or Carex. 8 *Sep.* 95.
372. *Lamellatus*. Lamellate. *Calyx*. Flat. Linnaeus calls it a squama.
373. *Lamina*. The superior part of a (petal of a) polypetalous corolla, patulous (erect patent or horizontal.) *Phil. bot.* 52. *t.* 7. *f.* 144. *b*, *cap. in Bot. arr. t.* 4. *f.* 11. *b*.—Flos brassicae. *Tourn. inst. t.* 7.
374. *Lana*. Wool. Crooked hairs set close together. *L. am. n.* 360. Preserves plants from excessive heat. *Salvia canariensis*, *S. Æthiopis*, *Sideritis canariensis*, *Marrubium*, *Verbascum*, *Stachys*, *Carduus erioccephalus* and *Onopordum*. *Phil. bot.* 109.
375. *Lanatus*. Woolly. Leaf covered as with a spiders web. *Phil. bot.* 45 ; with curvd hairs. *am. n.* 240.
376. *Lanceolatus*. Lanceolate. Leaf. *Stipula*. Oblong, and gradually attenuate towards each end. *Phil. bot.* 42. *t.* 1. *f.* 6, *cap. in Bot. arr. t.* 7. *f.* 6, but the fig. is linear.—*Phil. bot. t.* 3. *f.* 94, *cap. in Bot. arr. t.* 9. *f.* d. *L. am. n.* 167. 340. *Gray i. t.* 6. *f.* 3. 4. *Willd. bot.* 29. *n.* 33, for base read middle.
377. *Lateralis*. Lateral. *Stipula* inserted into the side. *L. am. n.* 327, but not into the axilla. Opposed to terminal, as in *Sparganium simplex*.
378. *Lateriflorus*. Peduncle. Bearing flowers on its sides. *L. am. n.* 410.
379. *Laterifolius*. Flower. On the side of the base of the leaf as in *Claytonia Solanum* and the *Asperifoliae*. *Phil. bot.* 112.
380. *Laxus*. Lamber. Trunk. Racemus. Readily bent into a bow. *L. am. n.* 31. 486. Opposed to strictus. *Phil. bot.* 228. Rather to rigidus.



211, the autumnal flowers, particularly the Semiflosculosae. *Phil. bot.* 244, and Melilotus Agrimonia, Verbascum Blattaria, Tulipa Alcea Chrysanthemum Crocus Impatiens Anthyllis Cheiranthus. 245 and Ranunculus.

*Antherae* frequently of this colour.

*Berries* of Solanum nigrum  $\gamma$  *Phil. bot.* 245. and Citrus.

403. *Lyratus*. Lyrate. *Leaf*. Transversely divided into segments, the lower of which smaller and more remote. *L. am. n.* 188. *Phil. bot.* 43. t. 2. f. 76, cop. in *Bot. err.* t. 8. f. 62. *Gray* i. 70. t. 4. f. 10.—Pinnatifid with a larger terminal oblong segment.

404. *Magistiformis*. Magistiform. Terete, attenuate both ways.

*Germen* of Heuchera caulescens. *Obs.* 10140, and many species of Iris.

405. *Marcescens*. Withering. *Corolla* shrivelling up and not falling off as in Campanula Orchis the Cucurbitaceae. *Phil. bot.* 65, and Erica. An unnecessary term. See persistens.

406. *Masculus*. Male. *Plant*. Bearing only male flowers. *Phil. bot.* 93.

*Flower*. Containing antherae. *Phil. bot.* 93.

*Disc of an umbel*. (Consisting of only male flowers,) as in Astrantia Caulalis Arteria Oenanthe and Scandix. *Phil. bot.* 79.

407. *Mediocris*. *Petiole* as long as the (lamina of the) leaf. *L. am.* 808. A useless term.

408. *Membranaceus*. Membranaceous. Of a dry skinny substance. *Hope*.—*Leaf*. When there is no sensible quantity of pulp between the 2 surfaces. *Phil. bot.* 46. Of the substance of which leaves generally composed. *L. am. n.* 255.

*Petiole*. Flattend. *L. am. n.* 802.

*Seedvessel* as in Ulmus. *Phil. bot.* 69.

409. *Membranatus*. Membranate. *Trunk*. Flattend as a leaf. *L. am. n.* 76.

410. *Miliaris*. Miliary. *Scabrities*. Like seeds of millet. *Phil. bot.* 109.

411. *Mollis*. Soft to the touch, as the leaves of Scorodonia betonicifolia opposed to scaber, giving a sensation

something between velvety and polishd. A term used by Linnæus.

412. *Monocotyledoneus*. Monocotyledonous. *Seed*. When the corculum is a cylindrical body, the outer end of which is a rostellum, and the inner end composed of alternat leaves sheathing each other. 2 *May* 18, 14 *Apr.* 19, and which may be considerd as a shoot or bud. In *Allium Cepa* the corculum lengthens becoming green, the end remaining in the perisperm, which last gradually becomes soft and juicy, and may possibly afford nourishment to the end of the first leaf. About the time that the tunic and perisperm fall off, the point of the second leaf makes its appearance at the end of the sheath of the first leaf, by which the second leaf is enveloped. In the Gramina the shoot lengthens at the base, throwing out a little above its junction with the rostellum a root on each side which shoot downwards, above which it throws up a long straight leaf, through whose vaginant transparent base are seen smaller leaves.
413. *Monopetalus*. Monopetalous. *Flower. Corolla*. Of one petal, as in *Convolvulus* and *Primula*. *Phil. bot.* 58. 64.
414. *Monophyllus*. Monophyllous. *Calyx* as in *Datura* and *Primula*. *Phil. bot.* 62. Consisting of one phyllum. *L. am. n.* 499. *Willd. bot.* 75. *t.* 4. *f.* 49. 50. 53. 72. 73; *t.* 5. *f.* 110.
- Involuerum*, Of one bractea as in *Bupleurum*. *Phil. bot.* 63.
- Spatha*. Of one bractea, as in *Narcissus*. *Phil. bot.* 64.
415. *Monospermus*. Monospermous. *Fruit* with one seed, as in *Polygonum* and *Collinsonia*. *Phil. bot.* 70.
416. *Mucronatus*. Mucronate. *Leaf*. Terminated by a projecting mucro. *L. am. n.* 213, as in *Juniperus communis*. *Linn. sp.* ii. 1470.
417. *Multicapsularis*. Multicapsular. *Seedvessel* with many capsules as in *Caltha Trollius* and *Helleborus*. *Phil. bot.* 69.
418. *Multifidus*. Multifid. *Cirrhus*. Many times divided. *L. am. n.* 356.
- Stigma* as in *Turnera*. *Phil. bot.* 68.

419. *Multiflorus*. Multiflorous. *Peduncle* with many flowers. *Phil. bot.* 41; *am.* vi. 234.
420. *Multilocularis*. Multilocular. *Seedvessel* with many cells as in *Nymphaea*. *Phil. bot.* 69.
421. *Multipartitus*. Multipartite. *Leaf*. Divided nearly to the base into many segments. *Phil. bot.* 44. *Gray* i. 71.
422. *Muricatus*. Muricate. *Trunk*. Sprinkled with subulate points. *L. am. n.* 68.
423. *Muticus*. Exaristate. Without aristae, opposed to aristate. *Phil. bot.* 233.
424. *Mutilus*. Mutilate. *Flower*. When the corolla is wanting, though the plant generally produces one, as in *Campanula pentagonia*, *Tussilago Anandria* and several species of *Viola*. *Phil. bot.* 80.
425. *Natans*. Floating. *Leaf*. Incumbent on the surface of water. *L. am. n.* 146, as in *Nymphaea* and *Potamogeton natans*. *Phil. bot.* 49.
426. *Nectarium*. A part belonging to the flower, containing a honeylike liquor. *Phil. bot.* 53. *t.* 7. *f.* 145. *a*, *Narcissus*; *f.* 146. *a*, the horned nectaria of *Aconitum*; *f.* 147. *a*, the nectariferous calcar of the calyx of *Tropaeolum*; *f.* 148 the 5 roundish bodies surrounding the germen in *Parnassia*.—*Phil. bot. a Spreng.* 98. *t.* 4. *f.* 26, in *Helleborus foetidus*; *f.* 28, *Delphinium elatum*; *f.* 29 *Aconitum*; *t.* 5. *f.* 14 glandular, at the base of the stamina; *t.* 6. *f.* 34, *Hedera Helix* but not accordant with my descriptions.—*Gray* i. 101. *t.* 11. *f.* 5. 4. 12, *b. Dec. theor.* 406. *Willd. bot.* 87. 89. *t.* 5. *f.* 135.
- Nectaria. *Link. phil.* 110.

Divisible into those which are corollaceous and tubular, and placed between the petals and stamina, sometimes alternating with the petals sometimes more numerous as in *Helleborus foetidus*. 20 Feb. 22.

In *Helleborus niger* they are more than double the number of the petals. *Obs.* 2651 and 20 Feb. 22.

Corollaceous, inserted between the stamina and pistils in *Aquilegia vulgaris*. *Obs.* 4867.

Scutellate, inserted into the base of the petals in *Fritillaria imperialis*. *Obs.* 2710. See *Willd. bot.* 88. *n.* 5.

Glandular and green inserted into the receptacle at

the base of the stamina and pistil in the Cruciferae, which do not appear to be nectariferous. See *Willd.* 98. n. 1. t. 5. f. 148.

Glandular, inserted into the receptacle, adjoining to the germina, in *Collinsonia canadensis* and *Ocimum scutellarioides*. *Obs.* 9861.

On the outside of the calyx as in *Banisteria Malpighia* and *Hiptage* affording a generic character!

Intermixd with the stamina in *Euphorbia cyathifera*. *Obs.* 10498, and probably abortiv stamina.

427. *Nervatus*. Nervate. *Leaf* bordered at the base by one of the ribs as in *Rheum Rhaponticum*, and *R. hybridum*.

*Margin of a leaf or calyx*. When a rib forms the margin of a leaf or is so close to the margin as to appear the margin, as in the leaves of *Bryum capillare* and the calyx of *Gentiana Amarella*. *Obs.* 6016.

428. *Nervosus*. Nervose. With simple ribs from the base to the end. *L. am.* n. 220. *Phil. bot.* 45. t. 1. f. 53, *cop. in Bot. arr.* t. 7. f. 46. Leaf with ribs more or less parallel to the margin extending from the end to the petiole or lower part of the costa, as in *Plantago* and *Cornus canadensis*. *Obs.* 11035.

429. *Nidulans*. Embedded. *Seeds*. Dispersed throughout the pulp of a berry, as in *Nymphaea*. *Phil. bot.* 70. 224.

430. *Niger*. Black. *Phil. bot.* 244. Black with a tinge of grey. *Willd. bot.* 199. n. 32.

Gaertner places them *niger ater anthracinus*. i. p. cxxiii.

431. *Nitidus*. Shining. *Leaf*. Glabrous and shining. *L. am.* n. 217, as in *Ferula canadensis* and *Angelica canadensis*. *Phil. bot.* 45. The leaves of *Aconitum Napellus* are glabrous while growing, but in the course of a quarter of an hour after they have been gathered afford an example of *Nitidus*.

432. *Niveus*. Snow-white as in the involucre of *Cornus herbacea*. *Phil. bot.* 72. 243.

433. *Nodosus*. Knotty. *Stem*. With joints thicker than the internodia. *Giseke* 152. *Link. phil.* 19.

434. *Nucleus*. Kernel. The seed of a nux and nucula, consisting of the corculum and sometimes perisperm covered by the indusium, on which is expanded the chalaza.

- 10 May 16. *Gray* i. 208. t. 14. f. 5, *cop. from Gaertn.*  
 ii. t. 89. f. 3. e.
435. *Nucula*. Capsule not opening, unilocular, osseous and coriaceous, monospermous and dispermous.—*Dec. theor.* 417. *Gray* i. 174. t. 14. f. 4. 5. 6, *cop. from Gaertn.* ii. t. 89. f. 3. a. a. e. f.
- Calybion*. *Mirb. ap. Dec. ib.* *Gray* i. 173. t. 14. f. 2. 4. 1.
- Glans*. *Dec. theor.* 417. *Gray* i. 173. t. 14. f. 2. 4. 1. *Rich. A.* 388. t. 8. f. 7.
436. *Nudus*. Naked. *Trunk*. Destitute of leaves sheaths and scales. *L. am. n.* 54. Opposed to tectus. *Phil. bot.* 233.
- Stem*. Destitute of leaves, as in *Euphorbia* *Stapelia* *Ephedra* and *Cuscuta*. *Phil. bot.* 39.
- Leaf*. *Petiole*. *Peduncle*. Destitute of bristles and hairs. *L. am. n.* 215. 322. 440.
- Capitulum*. *Racemus*. Without leaves or bristles. *L. am. n.* 459. 487.
- Verticillus*. Opposed to involucrate and bracteate. *L. am. n.* 450.
- Flower*. Destitute of corolla calyx and bractea as in *Arum*.
- Having a corolla but no calyx. *Vaill.* quoted in *Phil. bot.* 76.
- Receptacle of anthodia*. (Destitute of villi bristles or paleæ between the flowers,) as in *Matricaria*. *Phil. bot.* 71.
- Seed* as in *Salicornia* herbacea, when the corculum is covered by an indusium and tunic only. *Obs.* 1771, and *Blitum virgatum*. *Obs.* 12077.
437. Number of parts in organised bodies is perhaps to be preferred in classification to shape and proportion, making due allowance for duplicates moieties absence of a certain proportion of the complement of numbers and occasional coalescence of parts. 2 is the prevailing number in animals, 5 in plants, and so common in calyx that to mention it is as superfluous as to describe the calyx and germen as green, bearing at the same time no relation to the angles of the stem which are as generally 4, which is perhaps the next most prevalent number, as in the *Labiatae* the stamina and

capsules are 4, the stamina 4 in the Personatae and half of 4 in the cells of the capsules, the duplicate of 4 prevailing also in Octandria. Perhaps the next is the duplicat of 5 consisting of Decandria and Diadelphia. 6 and the half of 6 are the prevailing number of the monocotyledonous plants, but whether equal to the *more than* 10 of Dodecandria Icosandria Polyan-dria and Monadelphia I know not.

Variable in *Phytolacca* and the bracteate flowers.

Number of angles in the stem mostly 4, next 3, next 2.

438. *Nutans*. Nodding. *Trunk*. *Peduncle*. The end reflex outwards. *L. am. n.* 36. 426. Bent outwards at the end. *Hope*.

*Flower* as in *Fritillaria*, *Galanthus nivalis* (and some) *Campanulas* and *Geraniums*. *Phil. bot.* 61, and *Physalis pubescens*. *L. sp. i.* 262.

439. *Nux*. Nut. A seed coverd with an osseous shell. *Phil. bot.* 54. t. 8. f. 157. *b, b, cop. in Bot. arr. t. 5. f. 21. b, b*, surrounded by a fleshy pulp *a* of a drupe, probably *Juglans regia*.

Bilocular in *Cornus*. *Gaertn. i.* 126. t. 26, *Olea*, *Gaertn. ii.* 75. t. 93, and *Zizyphus*, in *Paluirus trilocular*.

Bivalve in *Juglans* and I think so in *Amygdalus communis* and *A. Persica*.

Of granular texture in *Lithospermum officinale*. *Obs.* 916.

440. *Ob* used in composition as in *obcordate*, *obovata*, means that the part usually lowermost is here the apex. See *Phil. bot.* 220.

441. *Obliquus*. Oblique. *Trunk*. Receding both from a perpendicular and horizontal direction. *L. am. n.* 92.

*Leaf*. When that part of the surface next the base is turnd towards the zenith, but that part of the surface next the apex is turnd so as to face the horizon, as in *Protea* and *Fritillaria*. *Phil. bot.* 49. The base looking towards the heavens, and the apex to the horizon. *L. am. n.* 139.

442. *Oblongus*. Oblong. *Leaf*. Whose longitudinal diameter is several times greater than its transverse, both

- extremities being narrower than the segment of a circle. *Phil. bot.* 42. *t.* 1. *f.* 5, *cop. in Bot. arr. t.* 7. *f.* 5. *L. am. n.* 162.
- Anthera* as in *Lilium*. *Phil. bot.* 68.
443. *Obtusus*. Obtuse. *Leaf*. The end terminated as it were within the segment of a circle. *Phil. bot.* 44. *t.* 1. *f.* 40, *cop. in Bot. arr. t.* 7. *f.* 39. *L. am. n.* 205.
- Calyx* as in *Nymphaea* and *Garcinia*. *Phil. bot.* 63.
- Stigma* as in *Andromeda*. *Phil. bot.* 68.
444. *Obtusus acuminatus*. Obtuse with a point. *Leaf*. *Phil. bot.* 44. *t.* 1. *f.* 43, *cop. in Bot. arr. t.* 7. *f.* 42. The leaf not sufficiently obtuse. The term subsequently used by Linnaeus seems to have been *cuspidatus*.
445. *Obvolutus*. Obvolute. *Leaves within the bud*. When alternat margins embrace the straight margin of an opposit leaf. *Phil. bot.* 105. *t.* 10. *f.* 7, as in *Dianthus* *Lychuis* *Saponaria* *Dipsacus* *Scabiosa* *Valeriana* *Marubium* *Phlomis* *Salvia* *Prasium*. 107. *Amplexans* would be a preferable term.
446. *Octofidus*. Octofid. *Calyx* as in *Tormentilla*. *Phil. bot.* 63.
447. *Octolocularis*. Octolocular. *Seedvessel* with 8 cells as in *Linum* *Radiola*. *Phil. bot.* 69.
448. *Olearia*. Globose glands mostly containing an essential oil, as in *Hypericum* and *Amyris*.
449. *Oligospermus*. Oligospermous. With several seeds a circumstance too indeterminate to be employed as a generic distinction.
450. *Opacus*. Dull. Opposed to *nitidus* and *lucidus*. Not reflecting light. *Giseke n.* 221.
- Elaeagnus orientalis*. *L. mant.* 41, *foliis ovatis opacis*. *Folia subtus pallidescent neutra pagina nitentia*.—*Nullius splendoris*. *Clus. hist.* i. 116. *l.* 4 from the bottom.
451. *Opercularis*. Opercular. *Anthera* closed by a lid. *Swartz. orchid. in tracts* 109. 158—206. *t.* 5—8. *Gray i.* 147.
452. *Operculum*. (1) The upper valve of the theca of *Musci*.—*Willd. bot.* 112. *n.* 4. *t.* 137. *Gray i.* 222, 268. *t.* 20. *f.* 5. *d. f. g. a.* *Dec. theor.* 427. *n.* 4. *a.* *Link. phil.* 121.

- (2). A membrane extended over the aperture of the calyx of Calyptranthes, performing the office of a corolla. See *L. a Schreb.* 334, and *L. a Willd.* ii. 974.
453. *Oppositus*. Opposit. *Branches. Leaves. Peduncles.* In pairs crosswise. *L. am. n.* 98. 124. 415.  
*Leaf.* When 2 leaves grow on a stem (or branch) in pairs, opposit each other. *Phil. bot.* 48. t. 3. f. 82 to 87 and 103, *cop. in Bot. arr. t.* 9. f. 5 and 3. d.
454. *Oppositifolius*. Opposit the leaves. *Stipula. Peduncle. Flowers.* When they grow on a side opposit to the leaves, as in Piper Saururus Phytolacca Solanum Dulcamara, Vitis, the annual Cistuses, Cissus, Corchorus, Ranunculus aquatilis and Geranium. *Phil. bot.* 112; *am. n.* 330. 409.
455. *Orbiculatus*. Orbicular. *Leaf* whose longitudinal and transverse diameters are equal, and circumference rounded. *L. am. n.* 159. *Phil. bot.* 42. t. 1. f. 1, *cop. in Bot. arr. t.* 7. f. 1, but in the copy the longitudinal diameter exceeds the transverse.
- Stigma* as in Lythrum. *Phil. bot.* 68.
456. *Orchides*. Oblong masses supposed to contain spermatic matter, of a uniform texture, not shewing any appearance of pollen, in pairs, inserted into a horny mass call'd a cercus, as in the Asclepiadeae. 10 Sep. 15.
457. *Orifice of the Tunic* is an aperture at the base of the tunic underneath the hilum, as in Sida capitata. *Obs.* 8779, Hibiscus Abelmoschus. *Obs.* 9998 and Phaseolus nanus.
458. *Osseus*. Osseous. *Seeds* as in nuts of different kinds, Corylus Avellana and Lithospermum. *Phil. bot.* 70.
459. *Ovalis*. Oval. *Leaf* orbiculato-oblong, both ends being rounded and equal. *L. am. n.* 161, whose longitudinal diameter exceeds its transverse, both extremities being narrower. *Phil. bot.* 42. t. 1. f. 4, *cop. in Bot. arr. t.* 7. f. 4, as in Urtica urens. *L. sp.* ii. 1396, Saxifraga crassifolia. *L. sp.* i. 573, *Obs.* 11448, radical leaves of Swertia perennis. *L. sp.* i. 328, and folioles of Astragalus glycyphyllos. *L. sp.* ii. 1067, Lathyrus tuberosus. *L. sp.* ii. 1083, and Vicia sylvatica.
460. *Ovatus*. Ovate. *Leaf. Spike.* Its longitudinal diameter exceeding its transverse, its base form'd by the



segment of a circle and its apex narrower. *L. am. n.* 160. 465. *Phil. bot.* 42. *t.* 1. *f.* 3, *cop. in Bot. arr. t.* 7. *f.* 8.

*Stigma* as in *Genipa*. *Phil. bot.* 68.

461. *Palatum*. Palat. A protuberance in the throat of a corolla. *Phil. bot.* 223.

462. *Palea*. A lamella inserted into a common receptacle separating the flowers. *Phil. bot.* 54. *t.* 7. *f.* 141. A bractea inserted into the receptacle of an anthodium, separating the flowers. See *Gray i. t.* 9. *f.* 21. *Lee t.* 12. *f.* 5.

463. *Paleaceus*. Paleaceous. *Receptacle of an anthodium*. (When bractea are interposed between the flowers) as in *Hypochaeris* and *Anthemis*. *Phil. bot.* 71.

*Calyx*. When the germen or seed is crown'd by paleaceous phylla, as in *Bidens* *Silphium* *Tagetes* and *Coreopsis*. *Phil. bot.* 70.

464. *Palmatus*. Palmate. *Root*. Fleshy, lobate. *L. am. n.* 14, as in *Orchis*. *Phil. bot.* 102.

*Leaf*. Divided beyond the middle into nearly equal lobes. *L. am. n.* 187. *Phil. bot.* 43. *t.* 1. *f.* 22, *cop. in Bot. arr. t.* 7. *f.* 22. *Gray i.* 71. *t.* 5. *f.* 7.

465. *Palmus*. A palm, or hands breadth. The diameter of the 4 fingers lying parallel measurd across, omitting the thumb. *Phil. bot.* 262.

466. *Panduriformis*. Pandurate. *Leaf*. Oblong, contracted below at the sides. *L. am. n.* 182.—Oblong, broader below, and contracted at the sides. *Phil. bot.* 43, as in radical leaves of *Rumex pulcher*. *Willd. bot.* 29. 475. *t.* 2. *f.* 24. Leaf of *Euphorbia cyathophora*.—*Gray i.* 69. *t.* 4. *f.* 9. Not noticed in the explanation of the plate.—A superfluous term.

467. *Panícula*. Panicle. Fructifications scatterd on peduncles variously subdivided, as in many of the *Gramina*. *L. am. n.* 489. *Phil. bot.* 41. 112. *t.* 9. *f.* 167, *cop. in Bot. arr. t.* 6. *f.* 6.

468. *Paniculatus*. Paniculate. *Trunk*. Branches variously subdivided. *L. am. n.* 90.

469. *Pannaceus*. Clothlike. Texture similar to that of cloth, form'd of fibres disposed in opposit directions. See *Papyraceus*.

470. *Papilionaceus*. Papilionaceous. *Corolla* (pentapetalous,) irregular, the lowermost petal (composed of 2 coherent petals) boatshaped, (called by Linnaeus the *carina*) the uppermost ascending (called by Linnaeus the *vexillum*) the 2 lateral petals (called by Linnaeus the *alae*) solitary. *Phil. bot.* 53. *Bot. arr. t.* 4. *f.* 13, 14, 15 upper petal, 16 lateral petal, 17, the lowermost petal consisting of 2 slightly coherent.
471. *Papillosus*. Papillose. *Leaf* covered with fleshy prominences. *L. am. n.* 234. *Gray i.* 77 who gives as a synonym *Verrucosus* which see.
472. *Pappus*. A fasciculus of hairs at the end of a seed, as in *Epilobium*. See also *Stapelia*. *L. gen.* 121. *n.* 307.  
*Coma*. *Willd. ap. L. a Willd.* ii. 293.  
 (Pappus. A feather like or hairy crown enabling a seed to fly. *Phil. bot.* 54. *t.* 8. *f.* 162. *a. b.* *cop. in Bot. arr. t.* 6. *f.* 2. *a, b.* was shewn by *Willd. ib.* to be the permanent calyx of what he considered as naked seeds of the flowers of *Valeriana* and the *Compositae*. It is part of the coat of the seed. In *Gazania Pavonia* it covers the whole surface, the hairs of the base being of the same texture and nearly as long as those of the margin. *Obs.* 10493, and in *Valeriana officinalis* is an extension of the coat of the germen in form of a multifid calyx. *Obs.* 3778. See *Calyx*.)
473. *Papulosus*. Papulose. *Leaf* covered with vesicular prominences. *L. am. n.* 235; *sp. i.* 698. *n.* 2—4.  
*Papillosus*. *Phil. bot.* 45. *t.* 1. *f.* 54, as in *Aloe margaritifera*. *Hort. kew. ed. I.* i. 468, which is *A. pumila*. *Thunb. prodr.* 61; *cop. ed. II.* i. 811.
474. *Papyraceus*. Papyraceous. Of a texture similar to that of paper, formed of fibres intermixed without any particular direction. See *Pannaceus*.
475. *Parabolicus*. Parabolic. *Leaf* whose longitudinal exceeds its transverse diameter, growing narrower from the base upwards in form of a semi-ovate (semi-oval) figure. *Phil. bot.* 42. *t.* 3. *f.* 110. Gradually narrowing towards the end which is rounded. *L. am. n.* 163. *Phil. a Spreng.* 88. *n.* 5. 450. *t.* 1. *f.* 2 is parabolic at the end.

476. *Parallelus*. Parallel. *Dissepiment* parallel to the valves of the seedvessel, as in *Lunaria* and *Draba*. *Phil. bot.* 69.
477. *Parietalis*. Parietal. *Dissepiment* inserted into the inner surface of the seedvessel, not as a suture.
478. *Parasiticus*. Parasitic. Growing out of another plant and not out of the ground, as *Viscum* *Epidendrum* (?) *Tillandsia*. (?) *Phil. bot.* 40, and *Cuscuta*.
479. *Partialis*. Partial. *Peduncle*. Supporting some of the flowers connected with a common peduncle. *L. am.* n. 399. See *Pedicellus*. *Phil. bot.* 40.
480. *Partitus*. Partite. *Leaf*. (Calyx Corollae &c.) Divided nearly to the base, (with linear sinuses and straight margins.) *L. am.* n. 186. *Phil. bot.* 43. t. 1. f. 28, *cop.* in *Bot. arr.* t. 7. f. 28, not deeply enough divided. *Gray* i. 71.
481. *Patens*. Patent. *Trunk*. (with branches) inserted at an acute angle. *L. am.* n. 92.  
*Leaf*. Inserted into the stem (or branch) at an acute angle, (more acute than an angle of 45 degrees. *Hope*.) *Phil. bot.* 49. t. 3. f. 84, *cop.* in *Bot. arr.* t. 9. f. 5. c.  
*Leaf*. *Petiole*. *Stipula*. *Peduncle*. *L. am.* n. 131. 317. 344. 422.
482. *Patulus*. Patulous. *Peduncle*. When its branches are so dispersed that its flowers are at a distance from one another, opposed to *coarctatus*. *Phil. bot.* 221.  
*Calyx*. *L. sp.* i. 779. n. 26—29. Opposed to *retroflexus*.—*Berk.*  
*Branch*. *Leaf*. *Peduncle*. *Calyx*. *Petal*, making an angle with the stem branch or axis of the flower between patent and erect, *patulus* meaning patent in a less degree.
482. \**Pectinatus*. Pectinate. *Calyx* of anthodial flowers of the *Compositae*. *Phylla* with aculei longer than the breadth of the *phyllum*.
483. *Pedatus*. Pedate. *Leaf*. When several folioles are inserted into the inner sides of a bifid petiole, as in some species of *Passiflora* and *Arum*, *L. am.* n. 262. *Phil. bot.* 47. t. 2. f. 67, *cop.* in *Bot. arr.* t. 7. f. 49.  
*Racemus*. When several flowers are inserted on pe-

icles into the inner sides of a bifid peduncle. *From L. am. n. 483.*

484. *Pedicellus*. Pedicle. Peculiar to each of the flowers belonging to a common peduncle. *L. am. n. 401.*

485. *Peduncularia*. Pedunculate. *Cirrhus. Gland. Utriculus*. Inserted into a peduncle. *L. am. n. 353. 376.*

486. *Pedunculatus*. Pedunculate. *Verticillus*. The flowers on peduncles. *L. am. n. 448.*

487. *Pedunculus*. Peduncle. A partial trunk supporting the fructification but not the leaves. *Phil. bot. 40.* A fulcrum supporting the fructification. *L. am. n. 296.*

Generally inserted into the branches, but in some tropical trees into the trunk as *Averrhoa Bilimbi*. See *Rumphius* fig. and *Cynometra cauliflora*, and I think *Carica Papaya*.

Sometimes covered by an extension of the rinde and coloured pulp of the fruit, as in *Rosa spinosissima*, in both varieties of black and red. *Obs. 7892.*

That of *Andropogon Ischaemum* composed of two solid cords readily separable. *Obs. 9581.*

488. *Pelta*. Target. A fructification of Lichen, generally inserted into the margin of the leaf. *Phil. bot. 223.*

489. *Peltatus*. *Peltate. Leaf*. The petiole inserted into the disc of the leaf, as in *Nymphaea Hernandia* and *Colocasia*. *L. am. n. 149. Phil. bot. 48. t. 3. f. 92, improved in Bot. arr. t. 9. f. 4. a.*

*Stigma* as in *Sarracenia Nymphaea Clusia* and *Papaver*. *Phil. bot. 68.*

490. *Pendulus*. Pendant. *Root* as in *Spiraea Filipendula*, and *Elaeagnus*. *Phil. bot. 102*

*Peduncle*. Limber, so that it hangs down with the (flower not) leaf. *L. am. n. 429* as in *Cytisus Laburnum* and *Acer Pseudoplatanus*.

491. *Penicilliformis*. Penicillate. Simple at the base, dividing at the end into several very fine nearly equal branches. *Link. phil. 16* as in *Sanguisorba canadensis*. *Obs. 10897.*

492. *Pentagonus*. Pentagonal. With 5 corners. *Phil. bot. 40; am. n. 52.*

493. *Pentapetalus*. Pentapetalous. *Corolla* with 5 petals as in the *Umbelliferae*. *Phil. bot. 64.*

494. *Pentaphyllus*. Pentaphyllous. *Calyx* with 5 phylla as in *Cistus Adonis* and *Cerbera*. *Phil. bot.* 62.

495. *Perennis*. Perennial. *Root*. Throwing up shoots for successive years. *L. am. n.* 3.

*Leaf*. Continuing green for several years. *L. am. n.* 276.

496. *Perfoliatus*. Perfoliate. *Leaf*. When the base of a leaf surrounds the stem (or branch), as in *Bupleurum*. *Phil. bot.* 49. t. 3. f. 97, *cop. in Bot. arr. t. 9. f. 4. g.* The base surrounding the stem transversely, not opening anteriorly. *E. am. n.* 155.

497. *Perforatus*. Perforated. *Pollen* as in *Geranium*. *Phil. bot.* 66.

498. *Pericarpium*. Seedvessel. An organ containing the (seed or) seeds which it (generally) lets go when they are ripe. *Phil. bot.* 53; *am. n.* 504. *Willd. bot.* 102.

499. *Peridium*. The capsule of *Fungi*. *Pers. syn. p.* x.

500. *Perispermum*. Perisperm. A part of a seed which surrounds embraces or is applied to some part of the corculum. *From Juss. p. vi. xvii. Gray. i. 209. t. 18. f. 29. c. 22.*

*Albumen*. *Gaertn. i. p. cxxxviii*

Mostly granular, but in *Trifolium striatum* gelatinous when steeped and without granules. *Obs.* 2831.

Firm, transparent with opaque substellate granules in *Ardisia solanacea*. *Obs.* 10018, and in some others whose names I have omitted to note down.

Grumous, the grumes resembling minute fragments of rubies, garnets, and carnelians in *Tamarindus indica*. *Obs.* 8198.

Elastic and apparently full of cavities, but its texture destructible by pressure between glasses in *Gentiana Amarella*. *Obs.* 6016.

Of a very loose texture, scarcely coherent in *Taxus baccata*. *Obs.* 3277.

Its texture furnishes no characteristic mark of even natural families. In the *Rubiaceae* it is generally horny, but in *Spermacoce sumatrensis* fleshy. *Obs.* 10207.

Semitransparent in *Posoqueria longispina*. *Obs.* 9984, *P. dumetorum*. *Obs.* 9985, *Ixia chinensis*. *Obs.* 10013, and *Panax digitatum*. *Obs.* 10033.

**Fibroso-columnar**, the fibres radiating from the inner to the outer surface in *Zingiber Cassanunar*. *Obs.* 10000, *Kaempferia pandurata*. *Obs.* 10009, *Helentia Alhugas*. *Obs.* 10010, and *Canna indica*. *Obs.* 9296.

Its absence or presence not characteristic of natural families. It is present in *Chenopodium album* Penthorum sedoïdes and absent in *Salsola Kali*, 10 Mar. 16, *Cotyledon Umbilicus*. *Obs.* 9602, *Sedum Aizoon*. *Obs.* 6692, *S. annuum*. *Obs.* 9606, *S. reflexum*. *Obs.* 1993, and *S. acre*. *Obs.* 6309, the this last seems the species figd. in Vent. tabl. iv. t. 18. f. 8, which is described at p. 120 as having a perisperm. Possibly the reticulate surface of the seed led the observer to conceive that it had a perisperm. It is present in *Cytisus Laburnum*. *Obs.* 7104, and absent in *Pisum sativum*. *Obs.* 8186, and *Phaseolus nanus*. *Obs.* 8152, present in *Malva sylvestris*. *Obs.* 4039, and *M. moschata*. *Obs.* 1867, and absent in *Gossypium arborescens*. *Obs.* 9991.—Present in *Draconcephalum virginicum*. *Obs.* 10117, *Laminia purpureum*. *Obs.* 5665, and *Ajuga disticha*. *Obs.* 10182, but absent in *Mentha glomerata*. *Obs.* 10177, *Ocimum scutellarioides*. *Obs.* 9802, *Nyctis capitata*. *Obs.* 5537 &c. &c.

Its texture very firm in most of the monocotyledonous plants which I have hitherto examined, in *Galium Aparine*, *Viburnum Opulus*, and *Celastrus verticillatus Roxb.* *MS.* *Obs.* 9800 the form of its granules not being obliterated by pressure between glasses.

Complicate in *Rhamnus catharticus*. *Obs.* 4891.

With pinnatifid sinuosities in *Hedera Helix*. *Obs.*

Face concave in *Panax digitatum*. *Obs.* 16083, *Ardisia solanacea*. *Obs.* 10018 and *Vitis vinifera*. *Obs.* 9783.

Membranaceous in *Penthorum sedoïdes*. *Obs.* 9601, very thin in *Pirus Malus*. *Obs.* 2714, and *Chenopodium maritimum*, and so thin in *Valeriana rubra* as to be inseparable from the tunic but in portions by scraping. *Obs.* 5061.

Green in *Viscum album*. *Obs.* 379.

Tinged black next the chalaza in *Iris foetida*. *Obs.* 9972.

501. *Perpendicularis*. Perpendicular. Root. Going straight downwards. *Phil. bot.* 38.

502. *Persistens*. Permanent. *Leaves, Bracteae*. Not falling off at the end of summer. *L. am.* 275. 397.

*Stipula*. Continuing after the falling off of the leaves. *L. am. n.* 333 as in *Diadelphia* and *Icosandria Polygynia*. *Phil. bot.* 108.

*Calyx*. Continuing till the fruit is ripe, as in the class *Didynamia*. *Phil. bot.* 63.

*Corolla* as in *Nymphaea*. *Phil. bot.* 65.

*Stigma* as in *Sarracenia Hydrangea Nymphaea* and *Papaver*. *Phil. bot.* 68.

503. *Personatus*. Masked. *Corolla* ringent but closed by a palate between the lips. *L. am. n.* 567. Bilabiate, the throat closed by a distention of the lower lip. *Dec. theor.* 394. As in *Antirrhinum majus*. *Willd. bot.* 82. *n.* 13. *t.* 4. *f.* 49. *Gray i.* 131.

*Flos personatus*. *Tourn. inst. t.* 9.

*Flos Antirrhini*. *Tourn. inst. t.* 7, *cop. in Bot. arr. t.* 4. *f.* 10.

504. *Petalum*. Petal. The corollaceous covering of a flower. *Phil. bot.* 52. *Tourn. inst. t.* 1. *f.* A. *cop. in Bot. arr. t.* 3. *f.* 3. *g.*—One of the portions of a corolla consisting of more than one portion and the whole of a monopetalous corolla.

Generally equal in number to the divisions of the calyx but in *Euphorbia* generally one less.

*Pinnatifid* in *Mitella*.

Its halves generally equal, but one of the halves smaller in *Hypericum*.

505. *Petiolatus*. On a petiole. *Leaf*. When a petiole is inserted into its base (or disc.) *L. am. n.* 148. *Phil. bot.* 49. *t.* 3. *f.* 93, *cop. in Bot. arr. t.* 9. *f.* 4. *b.*

*Cirrhus*. *Gland. Utriculus. Peduncle*. Inserted into a petiole. *L. am. n.* 352. 375. 405 as in *Ricinus Iatropha Passiflora Cassia* and *Mimosa*. *Phil. bot.* 111.

*Flowers*. On peduncles inserted into the petioles as in *Hibiscus* and *Turnera*. *Phil. bot.* 112.

506. *Petiolus*. Petiole. A kind of trunk connecting a leaf but not the fructification. *Phil. bot.* 41. A fulcrum supporting a leaf. *L. am. n.* 291.—That portion of a leaf

which in most leaves connects the lamina with the stem or root and which in compound leaves connects the folioles. See *Bot. arr. t. 8. f. 52—61. Willd. bot. t. 8. f. 247. 249.*

Sometimes permanent becoming spines, as in *Robinia spinosa. Obs. 8981.*

507. *Phyllum*, plural *Phylla*. The parts composing a calyx which consists of more than one piece. Linnaeus calls it folium and foliolum, but these terms he also applies to leaves and portions of compound leaves. 8 *Sep. 86. Foliola haec non male phylla dicerentur. Link. phil. 89; elem. 271. Monophyllus diphyllus triphyllus polyphyllus* are the adjectives throughout. *L. gen.*

508. *Pileus*. Peculiar to Fungi, orbicular (and conic), expanded horizontally, bearing fructifications underneath. *Phil. bot. 223. Pers. syn. p. x. Bot. arr. iii. p. x. t. 19. Willd. bot. 54. t. 1. f. 4. 6; t. 7. f. 223—225.*

509. *Pili*. Hairs. Setaceous excretory ducts. *L. am. n. 359. Phil. bot. 50. Rather aërial absorbenta.*

Generally glabrous, but scabrous in *Hieracium prenanthoides murorum venosum* and *alpinum. Obs. 10451 &c.*

Change colour in course of time, as in *Genista canariensis* which when recent white becoming ferruginous, how soon unknown. 13 *July 28.*

Glandular and cuspidate, in *Dictamnus albus. Obs. 5.*

510. *Pilosus*. Pilose. Leaf covered with long distinct hairs. *L. am. n. 242, as in Cortusa. Phil. bot. 45. t. 1. f. 47.*

*Calyx of anthodial flowers.* Phylla simple, without any lateral hairs proceeding from them, but frequently rough with microscopic points.

Pappus in many of the *Compositae. Phil. bot. 86.*

Pappus as in the seeds of *Stapelia. L. gen. 121.*

511. *Pinna*. Each simply pinnate leaf of a bipinnate leaf. *Willd. bot. 44. n. 4. L. sp. i. 545. n. 1. 2.*

512. *Pinnatifidus*. Pinnatifid. Leaf. Divided transversely into horizontal oblong segments. *L. am. n. 189; Phil. bot. 43. t. 1. f. 23, cop. in Bot. arr. t. 7. f. 23.*

513. *Pinnatus*. Pinnate. Leaf. Several folioles attached to the sides of a simple petiole. *Phil. bot. 47; am. n. 263.*

*Abrupte pinnatus*. Abruptly pinnate. Leaf. Pinnate,  
f 3



terminated neither by a tendril nor foliole. *L. am. n.* 284; *Phil. bot.* 47. t. 2. f. 69, *cop. in Bot. arr. t. 8. f.* 53.

*Alternatim pinnatus.* Alternately pinnate. *Leaf.* Pinnate with alternat folioles. *Phil. bot.* 47. t. 2. f. 70, *cop. in Bot. arr. t. 8. f.* 54.

*Articulate pinnatus.* With an articulated petiole. *Leaf.* Pinnate, with a common articulated petiole. *Phil. bot.* 47. t. 2. f. 75.

*Pinnatus cirrhosus.* *Leaf.* Pinnate terminated by a tendril. *L. am. n.* 284; *Phil. bot.* 47. t. 2. f. 72, *cop. in Bot. arr. t. 8. f.* 58.

*Decursive pinnatus.* Decursively pinnate. *Leaf.* Pinnate with decurrent folioles. *Phil. bot.* 47. t. 2. f. 74.

*Pinnatus folialis decursivis.* *L. am. n.* 284.

*Pinnatus cum impari.* Pinnate, with an odd foliole. *Leaf.* Pinnate, terminated by an odd foliole. *L. am. n.* 284; *Phil. bot.* 47. t. 2. f. 68, *cop. in Bot. arr. t. 8. f.* 52.

*Interrupte pinnatus.* Interruptedly pinnate. *Leaf.* Pinnate with the alternat (some of the intermediate) folioles smaller. *Phil. bot.* 47. t. 2. f. 71, *cop. in Bot. arr. t. 8. f.* 55, Every other foliole smaller. *L. am. n.* 284.

*Opposite pinnatus.* Oppositely pinnate. *Leaf.* Pinnate with opposit folioles. *Phil. bot.* 47. f. 68, 69, *cop. in Bot. arr. t. 8. f.* 52, 53.

514. *Pistillum.* Pistil. An organ adhering to the fruit for the reception of the pollen. *Phil. bot.* 58. *Tourne. inst. t. 1. f. c*; f. 1—19, *cop. in Bot. arr. t. 8. f. 7*; f. 5. e, c; f. 2. f, e to the base.—The rudiment of the fruit with organs for the reception of the pollen.

Stipitate in *Salix*, *Lychnis chalcidonica.* *Obs.* 5964. *Cucubalus saxatilis.* *Obs.* 10232, *Euphorbia*, *Distamnus albus.* *Obs.* 10862, *Menispermum canadense.* *Obs.* 10679, *M. cocculiferum.* *Obs.* 11413, *Cleome pentaphylla.* *Obs.* 7633, *Passiflora.* *Obs.* 8182 and *Helicteres.* *L. gen.* 468.

515. *Planus.* Flat. *Leaf.* The back and face parallel. *Phil. bot.* 46. Surface even. *L. am. n.* 247. *Gischn.* 247.

This last is the definition of *laevis*, *L. am. n.* 63. and shews the termini of the *amoen.* to be of inferior authority to that of the *phil. bot.* and really edited by a pupil whose name it bears.

*Filaments* as in *Ornithogalum*. *Phil. bot.* 65.

*Receptacle of anthodia* as in *Achillea*. *Phil. bot.* 71.

*Seed* as in *Tulipa gesneriana*.

516. *Plenus*. Double. *Flower*. When the corollae are multiplied to the exclusion of the stamina. Polypetalous corollae are most susceptible of this change, as *Pirus Malus* and *P. communis*, *Amygdalus communis* and *A. Persica*, *Prunus Cerasus*, *Myrtus Rosa Fragaria Ranunculus Caltha Anemone coronaria* and *A. Hepatica*, *Aquilegia Nigella Papaver Paeonia Dianthus Caryophyllus*, *Silene*, *Lychnis coronaria*, *Lilium Fritillaria Tulipa Cheiranthus Hesperis Malva Alcea* and *Hibiscus*. *Phil. bot.* 81, and *Mespilus Oxyacantha* and *Ulex europaeus*.

Monopetalous corollae are less liable as *Primula Datura Hyacinthus Narcissus Colchicum Crocus*. *Phil. bot.* 81, and *Campanula*.

Many of the *Compositae* are also called double from the prevalence of ligulate corollae to the exclusion of the tubular, without affecting their fertility, as *Calendula Anthemis Chrysanthemum Bellis Georgina Tagetes Heliopsis* and *Matricaria*.

517. *Plicatus*. Plaited. *Leaves within the bud*. Folded together longitudinally in plaits as in a plaited leaf, as in *Crataegus Betula alba B. Alnus*, *Fagus Vitis Acer*, *Viburnum Opulus*, *Ribes Althaea Malva Passiflora Alchemilla Humulus* and *Urtica*. *p.* 108, but the 2 last are also enumerated as examples of *foliatio involuta*.

*Leaf*. The disc alternately bent into acute folds. *L. am. n.* 262, as in *Carpinus Betulus*.—When the disc of the leaf ascends and descends in angles towards the margin, as in *Alchemilla Phil. bot.* 46. *t. 1. f. 37, top*, in *Bot. arr. t. 7. f. 67*, the angles extending in lines from the center to the circumference.

*Corolla* as in *Convolvulus*. *Phil. bot.* 84.

518. *Plumbeus*. Lead-coloured. *Phil. bot.* 244.

519. *Plumbeus*. Plumbeous. *Calyx*. *Phylla velutabes* with

- very fine lateral hairs many times longer than the breadth of the phyllum.
- Pappus plumosus as in *Orepis Scortzenera* *Tragopogon* and *Valeriana*. *Phil. bot.* 70. 86; *am. n.* 968.
- Stigma* as in *Rheum* the Gramina *Triglochin* and *Tamarix*. *Phil. bot.* 68.
520. *Plumula*. The scaly ascending part of the coraculum. *Phil. bot.* 54. *Bot. arr. t. 6. f. 3. d.*
- Very distinct in *Pisum sativum*. *Obs.* 8180, and *Amygdalus communis*. *Obs.* 9828.
- Half as long as the cotyledons in *Glycine bituminosa*. *Obs.* 8978.
- Larger than any I have hitherto examined in *Flemingia congesta*. *Obs.* 10051.
- Granular in *Amygdalus communis*. *Obs.* 9828, *Flemingia congesta*. *Obs.* 10051, and *Glycine bituminosa*. *Obs.* 8978.
521. *Poculiformis*. Poculine. *Corolla*. Hollow, cylindric, with a hemispheric base. *From Sal. R. in lin. tr. v.* 140. t. 5. f. 10.
522. *Pollen*. A powder produced by the flower (and contained in the antherae) which when moistened bursts and throws out elastic atoms. *L. am. n.* 687. *Phil. bot.* 53. t. 8. f. 151. a, a particle of pollen magnified discharging the atoms b, cop. in *Bot. arr. t. 3. f. 8. b.*
- Twice as large in the antherae of the 6 longer stamina as in those of the 6 shorter, in *Lythrum virgatum*. *Obs.* 10257.
- Trigonous in *Erica Tetrulix*. *Obs.* 4185.
- Triangular in *Oenothera Epilobium* and *Melaleuca hypericifolia*. *Obs.* 10873.
- Filamentose in *Chara* and *Zostera marina*. *Obs.* 10867.
523. *Polycotyledoneus*. Polycotyledonous. *Seed*. When the coraculum consists of a rostellum and verticillate leaves from 3 to 9, as in *Pinus*. It does not afford a character of families as in plants indubitably belonging to the same family the cotyledons are only 2 as in *Taxus baccata*. 14 Apr. 19.
524. *Polygamus*. Polygameous. *Plant*. Bearing hermaphrodite flowers and also either male or female (or both). *Phil. bot.* 93.

525. *Polygonus*. Polygonal. *Trunk. Stem*. With many angles. *Phil. bot.* 40; *am. n.* 52.
526. *Polypetalus*. Polypetalous. With many petals, as in *Nymphaea*. *Phil. bot.* 64.
527. *Polyphyllus*. Polyphyllous. *Calyx* consisting of many phylla. *L. am. n.* 500.
528. *Polyspermus*. Polyspermous. *Seedvessel. Cells*. Containing more than 12 or 8 seeds.
529. *Pomum*. Apple. A seedvessel without a valve, full, containing a capsule. *Phil. bot.* 58. *t. 8. f.* 158, *cop. in Bot. arr. t. 5. f.* 20.
530. *Pori*. Pores. A species of gland, as in *Tamarix* and *Silene Viscaria*. *Phil. bot.* 111.
531. *Praemorsus*. Bitten off. *Root. The end, truncate* not attenuate, as in *Scabiosa* *Plantago* and *Valeriana*. *Phil. bot.* 38, the end as if lopped off. *L. am. n.* 7.  
*Leaf*. The end very obtuse and terminated by unequal incisions. *L. am. n.* 208. *Phil. bot.* 44. *t. 1. f.* 19, *cop. in Bot. arr. t. 7. f.* 19. A had representation of the term.
532. *Prismaticus*. Prismatic. *Seedvessel*. Linear with several flat sides. *Phil. bot.* 223.
533. *Procumbens*. Procumbent. *Stem*. Growing horizontally along the ground. *Phil. bot.* 39. Through weakness resting on the ground. *L. am. n.* 38.
534. *Proliferus*. Proliferous. *Stem*. Throwing out branches only from the center of the extremities, *L. am. n.* 83, as in *Pinus*. *Phil. bot.* 40.  
*Flower*. When other flowers proceed from the middle of others, as in *Anemone* and *Ranunculus*. *Phil. bot.* 81.
535. *Propago*. Offset as in *Sampervivum tectorum*. *L. sp. i.* 664. 665. Varieties of apples propagated by offsets as the *Codlin* are less liable to change than those which are grafted. This is one of the oldest of our apples and is as prolific as the newest sorts. Let us endeavour to propagate the *Golden pippin* and *Nanpareil* by offsets. It is grafting which has occasioned the early old age of fruit trees. Ringing also produces a remarkable change making the branch flower earlier and lose its leaves sooner. The shoots of ringed

- branches and stems engrafted on other plants may produce alterations in the fruit.
536. *Pruinatus*. Frosted. *Stem. Leaf. Peduncle. Calyx.* Sprinkled with transparent particles as in *Chenopodium album* C. *urbicum* and *Holosteam cordatum*.
537. *Pubescentia*. Pubescence. All kinds of hairiness in plants. *L. am. n.* 295.
538. *Pubes*. The arms by which a plant is defended from external injuries. *Phil. bot.* 108, rather the organs by which the plant draws nourishment from the air.
539. *Pubescens*. Pubescent. *Leaf*. Slightly hairy. *Phil. bot.* 219, with short minute hairs.
- Stigma* as in *Cucubalus* and *Lychnis*. *Phil. bot.* 68.
540. *Pulposus*. Pulpy. *Leaf*. Fall of a tenacious substance. *L. am. n.* 264.
541. *Pulverulentus*. Powdery. Of the consistence of powder. *Dec. theor.* 518. *Byssi pulverulentae* *L. sp.* ii. 1638. See *Farinosus*.
542. *Purpureus*. Purple. *Phil. bot.* 244 as the corolla of *Crocus latifolius purpureus*.
543. *Punctatus*. Dotted. *Leaf* sprinkled with hollow dots. *Phil. bot.* 45; *am. n.* 233.
- With semitransparent dots as in *Hypericum*s and *Amyris nana punctata* and *heptaphylla*. *Obs.* 11858. 11859. 11860.
- Receptacle of an anthodium* as in *Tragopogon*. *Phil. bot.* 71.
544. *Quadrangulus*. Quadrangular. *Stem. Branches.* *L. sp.* ii. 1422. n. 1; 1104. n. 17, the trivial name, but the specific character is *quadratus* which see.
545. *Quadrangularis*. *Phil. bot.* 218.
546. *Quadrantalis*. Quadrantal. One fourth of a globular body divided by two cross sections made at right angles as the seeds of *Flacourtia cataphracta*. *Obs.*
547. *Quadratus*. Square. *Stem* with 4 sides. *L. sp.* ii. 1104. n. 17.
548. *Quadribracteatus*. Quadribracteate. *Involucrum* as in *Cornus Hydrocotyle Sison* and *Caminum*. *Phil. bot.* 64. 79.
549. *Quadricapsularis*. Quadricapsular. *Seedvessel*. With 4 capsules as in *Rhodiola*. *Phil. bot.* 69.

550. *Quadridentatus*. Quadridentate. *Seedvessel* with 4 teeth as in *Dianthus*. *Phil. bot.* 69.
551. *Quadrifidus*. Quadrifid. *Leaf*. Divided by linear sinuses with straight margins into four segments. *Phil. bot.* 43.  
*Calyx* as in *Rhinanthus*. *Phil. bot.* 63.  
*Style* as in *Rhamnus*. *Phil. bot.* 67.
552. *Quadriflorus*. Quadriflorous. *Peduncle* with four flowers. *Phil. bot.* 41.
553. *Quadrijugatus*. Quadrijugate. *Leaf*. Pinnate with 8 folioles. *L. am. n.* 284.
554. *Quadrilocularis*. Quadrilocular. *Seedvessel* with 4 cells as in *Euonymus*. *Phil. bot.* 69.
555. *Quadrupartitus*. Quadrupartite. *Leaf* divided nearly to the base by linear sinuses with straight margins into 4 segments. *Phil. bot.* 44.
556. *Quadrivalvis*. Quadrivalve. *Seedvessel* with 4 valves as in *Ludvigia* and *Oenothera*. *Phil. bot.* 69.
557. *Quaternarius*. Quaternary. An aoristic term indicating that the number of parts is 4, whether those parts in calyces are teeth segments or phylla, that is whether the calyx is quadridentate subquadrifid semi-quadrifid quadrifid subquadrupartite semiquadrupartite quadrupartite or tetraphyllous or in corolla whether as above or tetrapetalous. *Florum partitione quaternaria* says *Michaux* ii. 236, *sp.* the last.
558. *Quaternus*. In fours. *Leaves*. *Phil. bot.* 43. t. 3. f. 102, *cop. in Bot. arr.* t. 9. f. 3, c.
559. *Quinatus*. Quinate. *Leaf*. Digitate, with 5 folioles. *Phil. bot.* 47.
560. *Quinquangularis*. Quinquangular. *Culm* as in *Eriocaulon quinquangulare*. *Phil. bot.* 218.  
*Leaf*. Differing from triangular only in the number of angles. *Phil. bot.* 43. t. 1. f. 20, *cop. in Bot. arr.* t. 7. f. 20.
561. *Quinquebracteatus*. Quinquebracteate. *Involucrum* of 5 bracteae as in *Daucus Bupleurum Scandix* and *Bubon*. *Phil. bot.* 64. 79.
562. *Quinquecapsularis*. Quinquecapsular. *Seedvessel*. With 5 capsules as in *Aquilegia*. *Phil. bot.* 69.
563. *Quinquedentatus*. Quinquedentate. *Capsule* with 5 teeth as in *Alsine*.

564. *Quinquefidus*. Quinquefid. *Leaf* divided by linear sinuses with straight margins into five segments. *Phil. bot.* 48. *Calyx* as in *Nicotiana*. *Phil. bot.* 63. *Style* as in *Geranium*. *Phil. bot.* 67.
565. *Quinquejugatus*. Quinquejugate. *Leaf*. Pinnate with 10 foliokes. *L. am. n.* 284.
566. *Quinquelocularis*. Quinquelocular. *Seedvessel* with 5 cells as in *Pyrola*. *Phil. bot.* 69.
567. *Quinquepartitus*. Quinquepartite. *Leaf*. (*Calyx*) divided nearly to the base into 5 segments. *Phil. bot.* 44. *Gray* i. 71.
568. *Quinquevalvis*. Quinquevalve. *Seedvessel*. With five valves as in *Hottonia*. *Phil. bot.* 69.
569. *Quinus*. In fives. *Leaves* 5 from the joint of a branch. *L. am. n.* 120. *Phil. bot.* 48.
570. *Bacemus*. A peduncle with short lateral branches. *L. am. n.* 478 as in *Vitis vinifera* (a compound racemus) and *Ribes*. (a simple racemus) *Phil. bot.* 41. t. 9. f. 164, *cop. in Bot. arr. t.* 6. f. 8.
571. *Rachis*. The receptacle of a spike.—A filiform receptacle into which the flowers of a spike are longitudinally inserted. *L. am. n.* 650.
572. *Radiatus*. Radiate. *Flower*. When the corolla (of the flowers) of the disc (of an anthodium) is tubular but that of the (flowers of the) circumference of a different shape, as ligulate in (*Helianthus annuus*) and *Bellis minor*, tubular as in *Centaurea Cyanus*, and almost naked as in *Gnaphalium*. *Phil. bot.* 77. 78.
573. *Umbel*. When the petals (of the flowers) of the margin are larger, as in *Tordylium* *Caucalis* *Coriandrum* *Amont* and *Heracleum* *Sphondylium*. *Phil. bot.* 79.
574. *Radicatis*. Radical. *Leaf*. *Peduncle*. Rising from the root. *Phil. bot.* 41. 48; *am. n.* 108. 402.
575. *Radicans*. Radicant. *Trunk*. Fixing itself to high places by lateral roots. *L. am. n.* 42. *Leaf*. Throwing out roots. *Phil. bot.* 49; *am. n.* 147.
- Radicatus*. *Phil. bot.* 219.
575. *Radius*. In radiate (anthodia) consisting of corollae of a different shape from those of the disc, placed in the circumference. *Phil. bot.* 223.

576. *Radix*. *Root*. The organ by which nourishment is conveyed to a plant (from the earth.) *Phil. bot.* 38; *am. n.* 1.

577. *Ramentum*, plural *Ramenta*. Shavings. *L. fil. suppl.* 405. *Hort. kew. ed. I. iii.* 359. *n.* 16, which are laciniata stipulae. Wherein does it differ from lacinula. (See *Appendiculatus*.)

578. *Rameus*. *Leaf*. *Peduncle*. Inserted into a branch. *Phil. bot.* 41. 48. *t.* 3. *f.* 90; *am. n.* 110. 404.

579. *Ramosus*. Branched. *Root*. Divided into lateral branches. *Phil. bot.* 38. *t.* 6. *f.* 130, *cop. in Bot. arr.* 11. 5. Subdivided into fibres. *L. am. n.* 5.

*Trunk*. *Stem*. With lateral branches. *Phil. bot.* 40; *am. n.* 87.

*Spike*. Variously divided. *L. am. n.* 471.

*Seta*. Subdivided as it were into branches. *L. am. n.* 367.

*Scabrities* articulated as in *Verbascum*. *Phil. bot.* 109.

580. *Ramosissimus*. Very much branched. *Stem* with numerous branches without any regular order. *Phil. bot.* 40; *am. n.* 88.

581. *Ramulus*. A branch which has not yet acquired a woody hardness.

582. *Ramus*. Branch. A part of a stem. *L. am. p.* 221. A division or subdivision of the (trunk or) stem. *L. am.*

583. *Receptaculum*. Receptacle. The basis on which the different parts of fructification are fixed. *Phil. bot.* 54.

*Receptacle of the fructification*. A receptacle common to both flower and fruit. *Phil. bot.* 54.

*Receptacle of the flower*. The basis to which all the parts of the flower excepting the germen are fixed. *Phil. bot.* 54.

*Receptacle of the fruit*. The basis to which the fruit is fixed, at a distance from the receptacle of the flower. *Phil. bot.* 54.

*Receptacle of the seeds*. The basis to which the seeds are fixed within the seedvessel. *Phil. bot.* 54. *t.* 8. *f.* 161.

*Receptaculum seminis*. *Gaertn. i. p.* cvii.

*Spermophoron*. *Link. phil.* 121.

*Placenta*. *Dec. theor.* 413.



*Receptacle of an anthodium* liable to vary in its paleae, as in *Helenium*. See *Helenium autumnalis*. *Gaertn.* ii. 438, which he says is sometimes naked sometimes with paleae in the circumference.

584. *Reclinatus*. Reclinate. *Leaves within the bud*. When reflected downwards towards the petiole, as in *Podophyllum*, *Aconitum*, *Anemone Hepatica*, *A. Pulsatilla* and *Adoxa*. *Phil. bot.* 106. 108.

*Stem*. Bowed down towards the ground, as in some species of *Ficus*. *Phil. bot.* 39.

*Leaf*. Bowed downwards so that the apex is lower than the base. *Phil. bot.* 49. t. 3. f. 86, *cop. in Bot. arr.* t. 9. f. 5. e. Neither the original nor copy sufficiently bowed.—Bowed downwards, the bow being below the insertion, the end ascending. *L. am. n.* 135.

585. *Rectus*. Straight. *Prickle*. Without any flexure. *L. am. n.* 381.

*Arista*. With fibres extended straight forwards without interruption. *Lipp. n.* 115. Opposed to tortilis and recurvata.

586. *Recurvatus*. Recurved. *Leaf. Petiole*. Bent downwards, the (convex part of) the bow looking upwards. *L. am. n.* 136. 319.

587. *Recurvus*. Recurved. *Prickle*. Bowed outwards. *L. am. n.* 363.

588. *Reflexus*. Reflex. *Branches*. Hanging down perpendicularly. *L. am. n.* 105.

*Calyx* as in *Aselepias*. *Phil. bot.* 63.

As the sides of the upper *petal* of *Lupinus perennis*. *Obs.* 9748.

*Filaments* as in *Gloriosa*. *Phil. bot.* 66.

589. *Regularis*. *Corolla*. When the parts are similar in figure size and proportion, *Phil. bot.* 228, (and placed at equal distances,) as in *Aquilegia*. *Phil. bot.* 64.

590. *Remotus*. Remote. *Leaves* at some distance from one another. *L. am. n.* 123.

591. *Reniformis*. Reniform. *Leaf*. Roundish, excavated at the base and without angles. *Phil. bot.* 48. t. 1. f. 9, *cop. in Bot. arr.* t. 7. f. 9.—Roundish, with a sinus at the base; and no angles behind. *L. am. n.* 177.

*Pollen* as in *Narcissus*. *Phil. bot.* 66.

592. *Repandus*. Repandose. *Leaf*. The margin with angles, and sinuses between them, both being segments of a circle. *Phil. bot.* 44. t. 1. f. 29, *cop. in Bot. arr.* t. 7. f. 29. The margin serpentine but flat. *L. am. n.* 200.
593. *Repens*. Creeping. *Root*. Shooting a considerable length and throwing out radicles here and there. *Phil. bot.* 38. t. 6. f. 131, *cop. in Bot. arr.* t. 10. f. 7.—Running out lengthways, and throwing out shoots here and there. *L. am. n.* 8.
- Stem*. Procumbent, throwing out radicles here and there, as in *Hedera* and *Bignonia* 39. t. 4. f. 112, *cop. in Bot. arr.* t. 10. f. 8. Lying on the ground, and throwing out roots. *L. am. n.* 41 as in *Potentilla Anserina* and *Lysimachia Nummularia*. *Lipp. n.* 12.
594. *Restans*. Permanent. *Peduncle*. Remaining after the fructification is fallen off, as in *Jambolifera Ochna* and *Justicia*. *Phil. bot.* 232. Synonymous with *persistens*.
595. *Resupinatus*. Resupinate. *Leaf*. The upper surface becoming lowermost, and the lower uppermost. *L. am. n.* 144.
- Peduncle*. *L. am. n.* 424.
- Corolla*. When the upper lip points to the ground, and the lower lip to the sky, as in European Violets. *Ocimum Ajuga orientalis* and some species of *Satyrion*. *Phil. bot.* 104. *Gray i.* 131.
- Inversus*. *Tourn. L. gen.* 452.
596. *Retinaculus*. Receptacles of seeds, curvd as in *Justicia echioides*. See *Gaertn. i.* 255. t. 54. *Justicia B.* *Ruellia B, C*, *Barleria d.* *Acanthus. b*
597. *Retroflexus*. Retroflex. *Branches*. Divaricate this way and that. *L. am. n.* 106.
598. *Retrofractus*. Retrofract, as if made to hang down by force. *L. am. n.* 432.
599. *Retusus*. Retuse. *Leaf*. Terminated by an obtuse sinus. *Phil. bot.* 44. t. 1. f. 46, but the fig. is obovate orenate.—*L. am. n.* 297. *Phil. bot. a Spreng.* 38. n. 36. t. 1. f. 13.
600. *Revolutus*. Revolute. *Leaves within the bud*. When the lateral margins are rolled spirally backwards. *Phil. bot.* 105. t. 10. f. 3, as in *Rosmarinus* *Teucrium Ma-*

rum, *Netium*, *Ranex*, *Polygonum*, *Parietaria*, *Primula*, *Carduus*, *Tussilago*, *Senecio*, *Potentilla*, fruticosa and *Ptelea*. 106.

*Leaf*. Rolled back downwards. *Phil. bot.* 40. t. 9. f. 87, *cop. in Bot. arr. t. 9. f. 5, f.* Spirally recurvate. *L. am. n.* 137.

*Cirrhus*. A spire twisted half way back again. *L. am. n.* 358.

*Corolla* as in some species of *Asparagus* and *Medeola*. *Phil. bot.* 64.

*Stigmata* as in the class *Syngenesia*: *Dianthus* and *Campanula*. *Phil. bot.* 67.

601. *Rhombeus*. Rhombic. *Leaf*: Of the shape of a rhomb. *L. am. n.* 174, (a figure of 4 equal sides the opposite sides parallel; with 2 of the opposite angles acute and the other 2 obtuse.)

*Rhomboides*: *Phil. bot.* 220.

602. *Rictus*. Jaws. The opening between 2 lips. *Phil. bot.* 223.

603. *Rigidus*. Rigid. *Trunk. Leaf*. Not flexible. *L. am. n.* 80. 129.

604. *Rimosus*. Crackd. *Trunk*, with spontaneous fissures in the outer bark. *L. am. n.* 61.

605. *Ringens*. Ringent. *Corolla* monopetalous irregular; limb bilabiate. *Phil. bot.* 63. 183; *a Syng.* 98. 452. t. 8. f. 19, *Antholyza ringens*; 455. t. 6. f. 29; *am. n.* 564. *Bot. arr. t. 4. f. 8, 9, 10. Willd. bot.* 826. n. 12. t. 4. f. 72. *Gray i.* 131.

*Flos labiatus*. *Tourn. inst. t. 9, the inner fig. cop. in Bot. arr. t. 4. f. 9.*

606. *Rorulentus*. With a bloom. *Gaceta. in 62*. On *Josiper* berries plums and the stem of *Thalictrum aquilegifolium*. *Obs.* 3888.

607. *Ros*. Bloom: *L. sp. i.* 126. n. 4.

608. *Rosens*. Pink. *Corolla* as in *Rosa*, *Dianthus plumarius roseus*, *Robinia hispida* and *Centaurea Cyanus rosea*.

609. *Rostellum*. The simple descending part of the cor- culum. *Phil. bot.* 54. *Bot. arr. t. 6. f. 3.*

*Granular* and the granules generally disposed in lines:

Generally projecting, but inclosed by the cotyledons in *Nelumbium speciosum*. *Obs.* 9086.

Longer than the cotyledons in *Mirabilis Jalapa*. *Obs.* 6800.

Broader and more rounded than the cotyledons in *Pedicularia sylvatica*. *Obs.* 9458.

Generally near the hilum, but in *Corypha minor* distant one fourth of the circumference of the seed.

*Obs.* 9489.

Its extremity generally next to the hilum, but in *Rumex sanguineus* next to the chalaza. *Obs.* 5183. At a distance from the hilum in *Bignonia radicans*. *Obs.* 9499. At the end opposit to the hilum in *Scabiosa bipinnata*. *Obs.* 10093.

Generally unconnected with the perisperm or indusium, but in *Pinus Larix* ending in a filiform tail inserted into the perisperm. *Obs.* 2697.

Centripetal in *Malpighia glabra*. *Obs.* and *Triopteris*. *Gaertn.* ii. 168. *t.* 116, but centrifugal in *Banisteria lanifolia*. *Gaertn.* ii. 168. *t.* 116.

Centrifugal in *Hypericum Androsaem.* See *Androsaemum vulgare*. *Gaertn.* i. 283, and centripetal in the rest of the *Hypericums*. See *Hypericum perforatum*. *Gaertn.* i. 200.

610. *Rotatus*. Rotate. *Corolla* flat without a tube. *Phil. bot.* 52, as in *Sambucus nigra* *Lysimachia vulgaris*, *Galium Mollugo*. *Obs.* 5027, and *G. procumbens*. *Obs.* 7121.

*Flos rotatus*. *Tourn. inst.* *t.* 9, the middlemost cop. in *Bot. arr.* iii. *p.* xcv. *t.* 4. *f.* 8. If the tube be short hypocraterine and infundibulate corollas are too often called rotate.

611. *Rotundatus*. Rounded. *Leaf*. Destitute of angles. *L. am.* *n.* 166. Opposed to angular. *Phil. bot.* 233. The dark sene on the leaf of *Palargonium zonale* is described in *L. & Murr.* 618, as rotundata.

612. *Rotundus*. Round. *Leaf*. Without any angles. *Phil. bot.* 43. Synonymous with rotundatus, for in the index *p.* 320 we read rotundum and at *p.* 293 rotundatum. Smith also in *Gent. Mag.* 1793, *p.* 334 informs us that Linnaeus in the *Iter Gothl.* describes *Geranium lutei-*

dum foliis rotundis, which in Sp. pl. ii. 955 are called rotundatis.

613. *Rubens*. Purplish pink.

613. \**Ruber*. Red. *Phil. bot.* 244 as (the corolla of) *Anagallis arvensis*. 245.

614. *Rudis*. Coarse. *Calyx* of *Erica viscaria*. *L. mant.* 231, and *Illecebrum*. *L. a Murr.* 178.

615. *Rugosus*. Wrinkled. *Leaf* full of wrinkles. *L. am. n.* 229. The veins being more contracted than the disc, the intervening areolae become elevated, as in *Salvia (officinalis)*. *Phil. bot.* 45. t. 1. f. 51.

616. *Runcinatus*. Runcinate. *Leaf*. Pinnatifid, the lobes anteriorly convex and posteriorly transverse, as in *Leontodon*. *L. am. n.* 181.

617. *Sacculatus*, concave with the apex and margins inflex, as in the segments of the corolla of *Syringa cordifolia alba*. *Obs.* 10842.

618. *Sagittatus*. Arrowshaped. *Leaf*. Triangular, excavated at the base, with angles behind. *Phil. bot.* 43. t. 1. f. 13, *cop. in Bot. arr.* t. 7. f. 13.

*Leaf*. *Stipula*. Triangular, with the posterior angles acute and divided by a sinus. *L. am. n.* 179. 341.

*Anthera* as in *Crocus*. *Phil. bot.* 66.

619. *Sanguineus*. Bloodcoloured. *Calyx* as in *Bartsia americana*. *Phil. bot.* 71.

*Corolla*. A mixture of scarlet and carmine as in *Amaryllis bilabiata*.

620. *Samara*. A seedvessel not opening, monospermous and dispermous, with a membranaceous wing at the end or margin. *Winkl. ap. L. a Willd.* ii. 297; *bot.* 103. 485. t. 6. f. 162. 163, as in *Ulmus* *Ptelea* and *Vehtilago*.—*Phil. a Spreng.* 100. t. 6. f. 17. *Gray.* i. 173. t. 18. f. 24—26.

621. *Sarmentosus*. Sarmentose. *Stem*. Creeping, but rather naked (that is bare of leaves.) *Phil. bot.* 40, (where erase f. 131.)

*Trunk*. Filiform, striking root at the joints. *L. am. n.* 40.

622. *Scaber*. Rough. *Stem*. Roughened by rigid projecting eminences. *Phil. bot.* 40: Opposed to mollis, soft.—*L. am. n.* 67. 243.

*Leaf.* When stiffish tubercles are scattered over the disc. *Phil. bot.* 45.—Rough with rounded eminences?

*Calyx* of anthedial flowers of the Compositae. With minute sculei shorter than the breadth of the phyllum.

Pappus pilose. *L.*

623. *Scabrities.* Roughness. Composed of particles scarcely visible to the naked eye, sprinkled over the surface of plants, as in *Humulus*. *Phil. bot.* 109.

624. *Scandens.* Scandent. Rising up and supported by other bodies. *L. am. n.* 45.

625. *Scariosus.* Scariosse. *Leaf.* Of a dry arid substance, sonorous when touched. *L. am. n.* 256.

626. *Secundus.* Secundose. *Spike. Racemus.* All the flowers turned to one side. *L. am. n.* 482. *Phil. bot.* 41. Spike halved. *L. am. n.* 487.\*

627. *Scapus.* A trunk supporting fructifications but not leaves, as in *Narcissus* *Pyrola* *Convallaria* and *Hyanthus*. *Phil. bot.* 40. A peduncle proceeding from the root and assuming the appearance of a stem. *L. am. n.* 402.

628. *Scrobiculatus.* Scrobiculate. *Leaf* with a number of hollows on the surface, as in *Ipomoea lacunosa*. *L. sp. i.* 228, and *Lichen scrobiculatus*.

*Seed.* *Pasiflora* &c. *Gaertn. i. p.* cxxii.

629. *Scutellum.* A fructification of *Lichen*, orbicular concave with an elevated margin. *Phil. bot.* 222.

*Scutella.* *Phil. a Spreng.* 100. 458. *t. 9. f.* 22. *Gray i.* 228.

630. *Securiformis.* Hatchetshaped. *Scabrities* setaceous, on *Humulus*. *Phil. bot.* 109.

631. *Semen.* Seed. The rudiment of a new plant vivified by the irrigation of the pollen, separating from the parent plant, covered with a vesicular coat. *Phil. bot.* 54; *a Spreng.* 101, who for irrigation reads irritation. A plant consisting of a cœculum invested by a membrane or membranes, spontaneously separating from the parent plant, and when fully grown similar to but not identically the same with the parent plant. 11 Feb. 15.

*Perisperm cotyledons* and *rostellum granular* in *Spiraea trifoliata*.

Mostly round and oval, but cylindric in *Aeschynomene spinosa*. *Obs.* 10041.

Flat in *Bignonia radicans*. *Obs.* 9409; *B. Catalpa*. *Obs.* 10072, *Tulipa* *Lilium* and *Fritillaria*; and flat and obcordate in *Aristolochia*. *Obs.* 10666.

Erect in some plants as *Scorzonera laciniata*, *Obs.* 10853, pendant in others and horizontal in *Fritillaria imperialis*. *Obs.* 10129 and some species of *Lilium*.

The seed in the upper cell of the silique of *Cakile* *Bunias* is erect, that of the lower cell pendulous. The position of seeds with regard to the seed vessel or earthen is not to be depended on as a characteristic. 7 *Nov.* 17.

Described as naked in the order *Gymnospermia* of the class *Didynamia* and the anthodial flowers of the class *Syngenesia*. They appear seeds in *Ajuga disticha*. *Obs.* 10182, but in most others which I have examined they seem to be monospermous capsules. Those of *Teucrium betonicum* are villose, which rather inclines me to the opinion that what we there call a seed is a close capsule, 20 *Mar.* 17, and in *Bidens pilosa*. *Obs.* 10214, the seed has two membranaceous integuments, the tunio linate and the indusium obscurely reticulate, besides the crustaceous covering which I call a capsule not opening.

Capsules and calyces are often nervose, but I do not recollect any instance in which the tunic of a seed is so, except in *Scabiosa bidens*. *Obs.* 10098, where it is quinquenervose. Ribs are discernible in the fruit of *Salvia Verbenaca*. 10 *May* 16, and in *Polygonum Fagopyrum* the valves are costate with obsolete ribs parallel to the costa and margins. These circumstances favour the opinion that they are not seeds but close capsules.

The kernels are veined in *Quercus Robur*. *Obs.* 6726, *Juglans angustifolia*. *Obs.* 8577, and *Juglans regia*. *Obs.* 1843.

The sides are generally similar, but in *Cassia Obmaecrista* one side is uniformly convex and smooth, and the other convex in the middle and depressed at the sides, with an elevated margin, and the surface tuberculate. 25 *May* 16.

In *Asarum europaeum* and *Veronica agrestis* the back is convex and the face concave. *Obs.* 10067, 3609. In a species of *Aristolochia* the back is slightly convex and the face slightly concave. *Obs.* 10066.

632. *Sesugatus*. Sexjugate. *Leaf*. Pinnate with 12 folioles. *L. am. n.* 284.
633. *Semi* prefixd to an adjective as oval or lanceolate implies that it is the transverse half of the figure described, as the half of an oval and lanceolate leaf.
634. *Semiamplexicaulis*. Semiamplexicaul. Amplexicaul in a less degree. *Phil. bot.* 49.
635. *Semicylindraceus*. Semicylindrical. *Leaf*. Cylindrical; but one of the sides longitudinally flattend. *Phil. bot.* 46.
636. *Semilanceolatus*. Semilanceolate. *Petal*. The upper half of a lanceolate petal cut across the middle transversely, as in *Passiflora*, as described in *L. gen.* 466.
637. *Semiteretes*. Semiterete. *Trunk. Petiole*. Flat on one side, and nearly terete on the other. *L. am. n.* 48. 304.
638. *Seminalis*. Seminal. *Leaf*. A leaf which was one of the cotyledons, the first which make their appearance. *Phil. bot.* 49. t. 3. f. 88.
639. *Semitubulatus*. Semitubular. *Petal* as in *Hermannia*. *L. a Murr.* 610. Does not seem to differ from canaliculate.
640. *Sempervirens*. Evergreen. *Leaf* green during all the seasons of the year. *L. am. n.* 277.
641. *Senus*. In sixes. *Leaves* as in *Brabeium*. *Phil. bot.* 48.
642. *Septemnervis*. Septemnerve. *Leaf* with 7 ribs.
643. *Septiferus*. Septiferous. *Valves*. When the dissepiment is inserted into the face of the valve, as in *Celastus*. See *Juss.* 378.
644. *Sericeus*. Silky. *Leaf*. Coverd with very soft adpressed hairs. *L. am. n.* 239.
645. *Serratia*. Serration. The angles between the serratures of a serrate leaf.
646. *Serratura*. Serrature. The sinuses in the margin of a serrate leaf.
647. *Serratus*. Serrate. *Leaf*. The margin with acute unbricuated (?) angles pointing towards the apex of the leaf. *Phil. bot.* 44, t. 1. f. 31, *cop. in Bot. arr. t. 7. f. 31.*
- Leaf. Stipuli*. All the incisions of the margin pointing to the end of the leaf: *L. am. n.* 195. 346.



- Calyx* as in some species of *Hypericum*. *Phil. bot.* 63, and *Pedicularia*.  
*Corolla* as in *Tilia* and *Alisma*. *Phil. bot.* 64.  
648. *Sessilis*. Sessile. *Leaf*. When having no petiole it is immediately attached to the stem (or branch.) *Phil. bot.* 49. t. 3. f. 94, *cop. in Bot. arr. t. 9. f. 4. d.*  
*Leaf*. *Stipula* inserted into the stem (or branch) without a petiole. *L. am. n.* 150. 335.  
*Verticillus*. Without any obvious pedicles. *L. am. n.* 447.  
648.\**Setae*. Bristles. Stiffish hairs nearly terete. *L. am. n.* 364.  
649. *Setaceus*. Setaceous. *Calyx* of anthodial flowers. *Moench. carb. i.* 589. This Linnaeus styles pilose and sometimes capillary.  
650. *Sexangularis*. Sexangular. *Culm* as in *Eriocaulon* sexangulare and setaceum. *L. sp. i.* 129. *Phil. bot.* 218.  
*Leaf*. Differing from triangulare in the number of angles.  
651. *Sexfidus*. Sexfid. *Calyx* as in *Aesculus Pavia*. *Phil. bot.* 63. See *Fissus*.  
652. *Sexlocularis*. Sexlocular. *Seedvessel*. With 6 cells as in *Asarum* and *Aristolochia*. *Phil. bot.* 69.  
653. *Sexpartitus*. Sexpartite. *Stigma* as in *Asarum*. *Phil. bot.* 67. See *Partitus*.  
654. *Silicula* a siliqua whose length does not much exceed its breadth. *Lipp. n.* 140. A roundish siliqua furnished with a style which is often as long as the siliqua. *L. gen.* 329.  
654. *Siliqua*. A bivalve seedvessel with seeds fixed to both sutures. *Phil. bot.* 53. t. 8. f. 155, *cop. in Bot. arr. t. 5. f. 17*. Distinguishd from a silicula by its length very much exceeding its breadth and the shortness of the style. *Lipp. and L. gen. ib.*  
655. *Simplex*. Simple. *Root* undivided. *Phil. bot.* 38. t. 6. f. 129, *cop. in Bot. arr. t. 11. f. 6.*  
*Stem*. Regularly extended to the end. *Phil. bot.* 39; *am. n.* 80. Opposed to compound.  
*Leaf*. When a petiole supports a single leaf. *Phil. bot.* 42, or a leaf is sessile. Opposed to compound, as in *Hedysarum* the species with simple leaves. *L. sp. ii.* 1051.

*Spine. Seta.* Extended out longitudinally. *L. am. n.* 365. 391.

*Scabrities* setaceous aggregate, as in Hippophaë. *Phil. bot.* 109.

*Cirrhus. Racemus.* Undivided. *L. am. n.* 354. 479.

*Flower.* When the stamina or pistils or both are contained within a calyx or corolla. *Phil. bot.* 76.

*Fructification.* Consisting of few flowers. *L. am. n.* 491.

*Spike.* Continuous, undivided. *L. am. n.* 462.

*Umbel.* When the receptacle (rather compound peduncle) is once divided into peduncles, as in Panax Cornus some species of Spiraea (and Hedera Helix.) *Phil. bot.* 54. 78.

*Sertulum. Dec. theor.* 386. *Gray i.* 114. *t.* 7. *f.* 9; *t.* 8. *f.* 2.

*Spadix.* Undivided as in Calla Dracontium Pothos Arum and Zostera. *Phil. bot.* 77.

656. *Simplicissimus.* Quite simple. *Trunk.* With scarcely any branches. *L. am. n.* 79.

657. *Sinuatus.* Sinuate. *Leaf.* With dilated sinuses in the sides. *L. am. n.* 190. *Phil. bot.* 48. *t.* 1. *f.* 25, *cop. in Bot. arr. t.* 7. *f.* 25.

658. *Sinus.* Sinuses cut the disc of a leaf into parts. *Phil. bot.* 43.

659. *Solidus.* Solid. *Bulb.* Of a solid substance. *Phil. bot.* 50. Fleshy without any internal divisions. *L. am.*

653, as in Tulipa (rather as in Orchis the bulb of the Tulip being tunicated like the onion.) *Phil. bot.* 50. *t.* 6. *f.* 126, *cop. in Bot. arr. t.* 11. *f.* 3.

*Trunk.* Full within. *L. am. n.* 25. Containing a continued solid substance. *Lipp. n.* 9.

660. *Solitarius.* Solitary. *Stipula* as in Melianthus where it is on the inside, and in Ruscus on the outside. *Phil. bot.* 108.

*Peduncle.* One only in a place. *Phil. bot.* 41.

*Stipula. Peduncle.* Simple, scatterd. *L. am. n.* 326. 417.

661. *Solutus.* Loose. *Stipulae* (Opposed to adnate) as in most plants furnishd with stipulae. *Phil. bot.* 108.

662. *Sorus.* A collection of capsules of Filices. See *Cycl. xxxiii. Gray i.* 221. *t.* 19. *f.* 15. *Dec. theor.* 389.

663. *Spadiceus*. Spadiceous. *Flower*. An aggregate flower, with a receptacle common to several flowers and contained within a spatha. *Phil. bot.* 77.

664. *Spadix*. The receptacle of the *Palmae* growing out of a spatha and dividing into branches bearing fruit. *Phil. bot.* 55. t. 7. f. 183.

665. *Sparsus*. Sparse. *Branches. Leaves. Peduncles*. Inserted in great numbers without any regular order. *Phil. bot.* 41. 48; *am. n.* 99. 116. 414.

666. *Spatha*. The calyx of a spadix bursting longitudinally. *Phil. bot.* 52. t. 7. f. 133; *am. n.* 512; *a Sprng.* 97. t. 7. f. 12. Spadix and spatha of *Calla palustris*. *Gray* i. 116. t. 7. f. 12 of *Arum maculatum*. *Willd. bot.* 49. t. 3. f. 41, of *Arum*.—*Phil. bot.* t. 7. f. 132, *cop. in Bot. arr.* t. 8. f. 9 represents a spatha of *Galanthus nivalis*, which is a bractea bursting longitudinally but not meriting a distinct term.

667. *Spatulatus*. Spatulate. *Leaf*. Roundish with a linear base longer than the round part. *Phil. bot.* 42. t. 8. f. 109, *cop. in Bot. arr.* t. 8. f. 64. *Willd. bot.* t. 8. f. 238.

668. *Sphacelatus*. Sphacelate. Bractæe of the anthodia of *Senecio*, as if dead at the end. *L. gen.* 424.

669. *Spica*. Spike. Flowers sessile alternat, on a simple common peduncle. *L. am. n.* 461. *Phil. bot.* 41. 112. t. 9. f. 165; *cop. in Bot. arr.* t. 6. f. 5 as in *Piper* and *Mimosa*.

*Spica composita*. Compound spike. Composed of several spikes fixed to a peduncle (rachis). *L. am. n.* 463.

*Spicula*. *Phil. bot.* 223. Equally accords with the definition of spica.

670. *Spina*. Thorn. A sharp point which is an extension of the woody part of the plant, as in *Prunus spinosa*, *Rhamnus Paliurus*, *Hippophaë rhamnoides*, *Celastrus* and *Lycium*, by culture often disappearing as in *Pirus*. *L. am. n.* 886. *Phil. bot.* 50. t. 6. f. 121, *cop. in Bot. arr.* t. 10. f. 1.

Those of branches keep off the *Pecora* as *Pirus Prunus Citrus Hippophaë Gmelina Rhamnus Lycium Gagesbaea Celastrus Ulex Asparagus Spartium Achyronia Ximenia Ononis Stachys Alyssum Cichorium*.

These of *leaves* are found in Aloe Agave Yucca Hex Hippomane Theophrasta Carlina Cynara Onopordum Morina Acanthus Gundelia Juniperus Salsola Polygala Ruscus Berberia Statice Ovieda Glifortia.—*Phil. & Spreng.* 94. 455. t. 7. f. 1. Gloditschia triacantha.

These of the *calyx* as in Moluccella and Galeopsis, and of *anthodia* as in Carduus Cnicus and Centaurea.

These of the *fruit* as in Trapa Tribulus Spinacia Agrimonia and Datura. *L.*

671. *Spinacens*. Spinacens. *Petiole* becoming hard and pungent. *L. am. n.* 324. 384.

672. *Spinacens*. Spinosa. *Trunk* armed with spines. *L. am. n.* 373.

*Leaf*. The margin (and sometimes the face) with subulate rigid pungent prominences. *L. am. n.* 198.

673. *Spiralis*. Spiral. *Spike* as in the Asperifoliae and Claytonia. *Phil. bot.* 104.

674. *Spissus*. Thickset. Opposed to rarus.

675. *Spongiosus*. Spongy. *Trunk*. *Stipes*. Containing a porous cellular substance; as in Rubus idaeus and Juncus effusus.

676. *Spore*, plural *Sporae*. Seeds of fungi. *Rev. syn. p.* xi. Gray i. 220. 224. 225. *Dec. theor.* 377.—The rudiment of a plant but not like a seed composed of distinct parts.—All the seeds of Fungi which have fallen under my observation have more resembled pollen than seeds.

677. *Squamosus*. Scaly. *Bulb* consisting of imbricated layers as in Lilium. *Phil. bot.* 50. t. 6. f. 125, *cap. in Bot. arr. t.* 11. f. 4.

678. *Squamosus*. Squamose. *Trunk*. *Peduncle*. Sprinkled with scales. *L. am. n.* 58. 441.

*Culm*. Covered with imbricated scales. *Phil. bot.* 49.

*Leaf* with a flat lamellar pubescence, as in Olea europea and Hippophaë rhamnoides.

679. *Squarrosus*. Squarrose. *Leaf*. Divided into elevated segments not parallel to the plane of the leaf. *L. am. n.* 192.

*Involucrum* of an *anthodium*, composed of bractae divaricate and very patent in all directions, as in Conyza and some species of Carduus and Onopordum.

*Phil. bot.* 62.

680. *Stamen*, plural *Stamina*. An organ for the preparation of the pollen. *Phil. bot.* 53. *Tourn. inst. t.* 1. *f.* L.—*f.* 1. *H. B.*, *cop. in Bot. arr. t.* 3. *f.* 3. *i, h*;—*f.* 6; *f.* 5. *b*; *f.* 2. *b, c.* *Phil. bot.* 53. *t.* 3. *f.* 149. *e, f*; *cop. in Bot. arr. t.* 3. *f.* 5. *b.* *Phil. bot. t.* 8. *f.* 150. *cop. in Bot. arr. t.* 3. *f.* 6. *Bot. arr. t.* 3. *f.* 2. *b. c*; *f.* 3. *h. i.*

More liable to variation and abortion than perhaps any other of the parts of fructification and occasioning more uncertainty than any other circumstance in the sexual system, the investigator being often at a loss whether to reckon or not the abortive stamens, and sometimes the abortion of a stamen has occasioned the division of one genus into two, as in *Celsia* which scarcely differs from *Verbascum*.

Mostly of the same size, but in many genera every other shorter, and in *Lythrum virgatum* every other shorter with antherae of a different colour and pollen of a different size. *Obs.* 10257.

In *Nicotiana undulata*. *Obs.* 9102, one is as long as the tube of the corolla and the other 4 very short.

Generally shedding pollen all together, but one half of them before the other half in *Caryophyllaceae* and one by one in *Euphorbia*. 11 May 15.

Stipitate in *Euphorbia Lathyris*. *Obs.* 9437, as is the pistil and in *Salvia*. *Obs.* 5284.

Permanent in *Eucomis punctata*. *Obs.* 8122.

In monopetalous flowers generally inserted into the corolla, but not in *Azalea*. *L. lapp. n.* 89, nor *Aloe*, *ib.*, nor *Erica*. *Obs.* nor *Pinguicula vulgaris*. *Obs.* 4866, nor *Gloriosa superba*. *Obs.* 10255.

681. *Stellaris*. Stellate. *Scabrities* as in *Alyssum* and *Helicteres*. *L. am. n.* 109.

682. *Stellatus*. Stellate. *Leaves*. Verticillate, when more leaves than 2 surround the stem (or branch) in manner of a whirl. *L. am. n.* 126; *Phil. bot.* 48. *t.* 3. *f.* 101, *cop. in Bot. arr. t.* 9. *f.* 3. *b.* A superfluous term with respect to leaves.

*Setae*. Disposed crosswise. *L. am. n.* 369.

*Villi*. Composed of minute hairs diverging from a center, as in *Verbascum* and *Croton*.

683. *Stigma*. The summit of the pistil, (sometimes) moistened with a liquid for the bursting of the pollen.

*Phil. bot.* 53. t. 8. f. 149. d; f. 152. c, cop. in *Bot. arr.* t. 3. f. 5. e; f. 7. l. *Bot. arr.* t. 3. f. 2. f. *Tourn. inst.* t. 5. **CCEGILO.**

*Filiform* as in *Zea*. *Phil. bot.* 68.

*Capillary* as in *Rumex*. *Phil. bot.* 67.

*Lateral* as in *Manuela viscosa*. *Willd. enum.* ii. 658, and *Cerastium arvense* and *tomentosum*.

Generally tuberculate papillose or villose but glabrous in *Aquilegia vulgaris* and *Trollius europaeus*.

Reticulate in *Anchusa officinalis*. *Obs.* 6387.

684. *Stimuli*. Stings, Mucrones occasioning inflamed punctures attended with itching. *L. am. n.* 398, keeping off the naked animals as in *Urtica* *Iatropa Acalypha* and *Tragia*. *Phil. bot.* 110.

685. *Stipes*. A trunk passing into leaves. *L. am. n.* 20. The base of a frons, as in *Palmae Filices* and *Fungi*. *Phil. bot.* 48.

(2) A thread supporting the pappus (calyx of the flower of an anthodium) and connecting it to the seed. *Phil. bot.* 54. t. 8. f. 162. d, cop. in *Bot. arr.* t. 6. f. 2. d. The stipes of the close capsules of the Syngenesize is an attenuate extension of the capsule.

686. *Stipula*. A scale growing at the base of young petioles. *L. am. n.* 203. (generally) on each side as in the *Papilionaceae* *Tamarindus* *Cassia* *Rosa* *Melanthus* *Liriodendrum* *Prunus* *Armeniaca* *P. Padus*, *Amygdalus* *Persica*, &c. *Phil. bot.* 50. t. 5. f. 118. b, cop. in *Bot. arr.* t. 10. f. 6. b.

Like the leaves in miniature in *Cistus*. 7 June 15.

Glandular in *Linum flavum*. *Obs.* 10367.

687. *Stipularis*. Stipular. *Gland. Utriculus*. Inserted into a stipula. *L. am. n.* 377 as in *Bauhinia* and *Prunus* *Armeniaca*. *Phil. bot.* 111.

688. *Stipulatus*. Stipulate. *Trunk*. Furnishd with stipulae. *L. am. n.* 75.

689. *Stoloniferus*. Stoloniferous. *Trunk*. Throwing out shoots which strike root. *L. am. n.* 39.

690. *Striatus*. Striate. *Stem* inscribed with very fine hollow lines. *Phil. bot.* 40; *am. n.* 64.

*Leaf*. When the surface is marked longitudinally with superficial concave parallel lines. *Phil. bot.* 45; with slightly excavated parallel lines. *L. am. n.* 226.

- Stigma* as in Papaver. *Phil. bot.* 68. *Tourn. inst.* t. 5. f. G.
691. *Strictus*. Strict. *Trunk. Leaf. Peduncle*. Quite perpendicular without any flexure. *L. am. n.* 28. 128. 430. Quite straight.
- Leaf*. Quite straight. *Phil. bot.* 219. Opposed to lax. *Phil. bot.* 238. As the leaves of *Hyacinthus botryoides*. *L. sp. i.* 455.
692. *Strigae*. Stiffish flattish hairs. *L. am. n.* 363 as in Cactus Malpighia Hibiscus and Rubus. *Phil. bot.* 109, keeping off animalcules and the tongues of animals. *Phil. bot.* 109.
- Some are fixed by the middle to the part into which they are inserted as in Malpighia and Cornus alba.
- In Campanula patula and persicifolia they are membranaceous.
- In the siliculae of Biscutella auriculata they are capitate. *Obs.* 1786. and
- Concave in Thlaspi.
693. *Strigosus*. Strigose. *Surface*. With longish bristles proceeding from a bulb. *Phil. a Spreng.* 80. t. 8. f. 2.
- Stipes* with strigae as in Polypodium Lonchitis. *L. sp. ii.* 1148.
- Leaf*. With rigid lanceolate prickles. *L. am. n.* 246.
694. *Strobilus*. Cone. A (compound) seedvessel form of an amentum. *Phil. bot.* 58. t. 7. f. 188, cop. in *Bot. arr.* t. 5. f. 18. A spike become permanent.
695. *Stroma*. *Pers. syn. p. x.* The receptacle of Sphaeria.
696. *Strophilae*. Fungous and callous prominences on the face of some seeds. *Dec. theor.* 433.
697. *Strophilatus*. Strophiolate. *Seed*. With callosities on the face as in Kennedia. *Hort. kew. ed. II.* iv. 299.
698. *Stylus*. Style. That part of the pistil which connects the stigma to the germen. *Phil. bot.* 69. t. 8. f. 149. c; f. 152. b, cop. in *Bot. arr.* t. 3. f. 5; d, and f. 7. k. *Bot. arr.* t. 3. f. 2. e. *Tourn. inst.* t. 5. B, B. D.
- Tubular in Fritillaria pyrenaica. *Obs.* 9484.
- Green in Verbascum Thapsus. *Obs.* 1730.
699. *Sub* in composition at the beginning of a word expresses a less degree. *Fere* and *plurimumque* are used for generally.

700. *Subdivisus*. Subdivided. *Stem* divided into branches without regularity. *Phil. bot.* 40.
701. *Suberosus*. Corklike. *Trunk*. Covered with an outer bark rather soft but elastic. *L. am. n.* 60, as in *Quercus* *Suber* and *Ulmus campestris hollandica*.
702. *Subglobosus*. Subglobose. *Gray. i.* 202. *Capitulum*. Nearly globular. *L. am. n.* 455.  
Subrotundus. *L.*
703. *Semilucens*. Semitransparent. *Seed* as in *Talipa gesmeriana*. *Obs.* 8068.
704. *Submersus*. Immersed. *Leaf*. Below the surface of water. *L. am. n.* 145.
705. *Subramosus*. Subramose. *Trunk* with a very few lateral branches. *L. am. n.* 86.
706. *Subrotundus*. Roundish. *Leaf*. Nearly orbicular. *L. am. n.* 158. *Phil. bot.* 42. *t. 1. f. 2, cop. in Bot. arr. t. 7. f. 2.*
707. *Subulatus*. Subulate. *Leaf*. *Stipula*. Linear at the base, attenuate towards the end. *L. am. n.* 270 339. Linear below, but towards the end gradually tapering. *Rhiz. bot.* 43. *t. 1. f. 8, cop. in Bot. arr. t. 7. f. 8.*  
*Filaments* as in *Tulipa*. *Phil. bot.* 65.  
*Style* as in *Geranium*. *Phil. bot.* 67.
708. *Sulcatus*. Furrowed. *Stem*. With broad deep excavated furrows. *Phil. bot.* 40, as in *Pastinaca*.  
*Trunk*. Inscribed by deep lines. *L. am. n.* 45.  
*Leaf*. Marked longitudinally with numerous angles and as many intervening sinuses (furrows). *Phil. bot.* 46. *t. 1. f. 60.* With deep excavated lines (furrows). *L. am. n.* 227.
709. *Sulphureus*. Brimstonecoloured. *Phil. bot.* 244. Yellow between citrinus lemoncoloured and stramineus strawcoloured.
710. *Superans*. Extending beyond, as the leaves extending beyond the spathe in *Arum Dracontium*. *L. sp. ii.* 1308.
711. *Supraaxillaris*. Supraaxillary. *Flowers* above the axilla as in the *Asperifolias* and *Potentilla monspeliensis*. *Phil. bot.* 112.
712. *Supradecompositus*. Supradecomposed. *Leaf*. When a number of folioles are connected by a petiole several times divided. *Phil. bot.* 48.



713. *Superus*. Superior. *Germen*. When the germen is not invested by the calyx, as in *Primula*. In some species of *Melastoma* the tube of the calyx closely invests the germen; in others there is a space between them. In a physiological view the outer rind of the germen in a germen inferum is to be considered as the calyx.
714. *Suffrutex*. Under shrub. Stems perennial of a somewhat ligneous texture as *Pelargonium* and the greater part of the *Succulentae*.
715. *Suffruticosus*. Suffruticose. *Trunk* permanent at the base, the branches withering every year. *L. am. n. 22.*
716. *Sarculus*. Shoot. A branch which has not acquired a ligneous hardness, proceeding from the root.
717. *Suturalis*. Sutural. *Dissepiment*. When inserted into the sutures of the seedvessel, being generally an extension of the valves.
718. *Tectus*. Coverd. Opposed to naked. *Phil. bot. 233,* and to *apertus* open.
719. *Teres*. Terete. *Trunk*. *Stem*. *Peduncle*. Cylindric as in *Hypericum Androsaemum* and *Convallaria multiflora*. *Phil. bot. 40.* Destitute of angles. *L. am. n. 47. 433.* Opposed to angular. *Phil bot. 233.*  
*Leaf*. Cylindric. *Phil. bot. 46. t. 1. f. 62, cop. in Bot. arr. t. 8. f. 68.*  
*Leaf. Petiole*. Nearly cylindric. *L. am. n. 258. 303.* When the girth of a long body is at an equal distance from its axis, but its girths taken at different distances unequal. Such a body may be levigate striate sulcate and angular. I have long been in the habit of making a distinction between *teres* and *cylindricus*, conceiving that Linnaeus used the term *teres* to express the angular roundness of a long substance though not of the same thickness throughout its length, as in a rolling pin used in pastry, and *cylindricus* where the body is of the same diameter throughout as in a rolling stone. A stem may be *teres attenuatus* but not *cylindricus attenuatus*. I have imagined that I have found these terms so employed in the practical works of Linnaeus.
720. *Tergeminus*. Trigeminate. *Leaf*. Trebly geminate. A bifid petiole supporting at each end 2 folioles and

- also 2 folioles at the divarication of the common petiole. *L. am. n.* 288.
721. *Terminalis*. Terminal. *Spine. Peduncle.* Terminating a branch or stem. *Phil. bot.* 41; *am. n.* 387. 407.
722. *Ternatifidus*. Ternatifid. *Leaf.* Pinnatifid with only 3 segments, as in *Cotyledon laciniatus*. *Obs.*
723. *Ternatus*. Ternate. *Leaf.* Digitate, with 3 folioles. *Phil. bot.* 47. *t. 2. f.* 65, *cop. in Bot. arr. t. 7. f.* 47. (*Phil. bot. f.* 64 is trilobata.)
724. *Ternus*. In threes. *Leaf. Peduncle.* When 3 proceed from the same place, as from the same axilla in *Impatiens zeylanica*. *Phil.* 222, and *Nerium*. 48.
725. *Testaceus*. Brickdustcoloured. *Gilvus*. *Phil. bot.* 244. Whether *gilvus* be different from *testaceus* I do not know.
726. *Tetragonus*. Tetragoneous. *Trunk. Peduncle.* With 4 prominent longitudinal angles. *L. am.* 52. 485.
727. *Tetrapetalus*. Tetrapetalous. *Corolla* with 4 petals as in the class *Tetradynamia*. *Phil. bot.* 64.
728. *Tetraphyllus*. Tetraphyllous. *Calyx* with 4 phylla as in *Sagina Epimedium* and the class *Tetradynamia*. *Phil. bot.* 62. *Willd. bot.* 75. *t. 5. f.* 148.
729. *Tetraspermus*. Tetraspermous. *Fruit.* With 4 seeds as in the *Asperifoliae* and *Verticillatae*. *Phil. bot.* 70.
730. *Theca*. The capsule of the *Musci*. *Phil. a Spreng.* 101. 456. *t. 7. f.* 16. *a, b*, bivalve, circumsindced, a bag containing seeds and a columella occupying the upper half of the capsule, and the margins of the 2 valves bordered with organs not found in other plants. 29 *Ap.* 17. *Bot. arr.* iii. 21. *t. 14. f.* 27.
- Urne. *Dec. theor.* 427.
- Urna. *Gray i.* 221. *t. 20. f.* 1—5. 9. 10. 13. 14. 17.
731. *Thyrus*. A panicle compacted into an ovate shape. *L. am. n.* 477 as in *Syringa* and *Tussilago Petasites*. *Phil. bot.* 41, a superfluous term.
732. *Tomentosus*. Tomentose. *Trunk. Leaf.* Covered with interwoven villi indiscernible (by the naked eye). *L. am. n.* 70. 238, whence the leaf appears whitish, as in maritime plants and such as grow on high grounds exposed to winds. *Phil. bot.* 45. *t. 1. f.* 48.

733. *Tomentum*. Interwoven villi scarcely discernible. *L. am. n.* 362. Defends plants from wind. Generally of a hoary colour as in *Tomex Medicago Halimus*. *Phil. bot.* 109, *Verbascum Thapsus* and most of the *Crotons* in which the villi are stellate.
734. *Tortilis*. Twisted. *Arista*. When it has a twisted joint in the middle, as in *Avena*. *Phil. bot.* 223.
735. *Tortus*. Contorted. *Corolla*. To the left, as in *Nerium Asclepias Vinca Ranvolfia Periploca* and *Stapelia*, and to the right as in *Pedicularia*. *Phil. bot.* 64. 103.
736. *Torosus*. Torose. *Seedvessel*. Swelling out here and there with protuberant prominences as in *Solanum Lycopersicum* and *Phytolacca*. *Phil. bot.* 224.
737. *Trapeziformis*. Trapezine. *Leaf*. Of the shape of a trapezium (an irregular square whose sides are unequal, and none of them parallel.) *Phil. bot.* 220; *am. n.* 175.
738. *Triangularis*. Triangular. *Stem* with 3 prominent angles. *Phil. bot.* 40 as in *Eriocaulon triangulare*. *L. sp. i.* 128.  
*Leaf*. With 3 angles. *L. am. n.* 172. When 3 prominent angles border the disc, (the upper angle terminating the leaf. When the base is angular it is cuneate.) *Phil. bot.* 43. *t. 1. f. 12*, *cop. in Bot. arr. t. 7. f. 12*, but so much excavated at the base as to be rather sagittate.
739. *Tribracteatus*. Tribracteate. *Involucrum* with three bracteae as in *Butomus* and *Alisma*. *From Triphyllus*. *Phil. bot.* 64.
740. *Tricapsularis*. Tricapsular. *Seedvessel* with 3 capsules as in *Veratrum Delphinium ambiguum D. peregrinum D. grandiflorum D. elatum* and *D. Staphisagria*. *Phil. bot.* 69.
741. *Trichotomus*. Trichotomous. Successively divided into 3 parts. *Hope*.
742. *Trifidus*. Trifid. *Leaf. Calyx*. Divided by 3 linear sinuses with straight margins. *Phil. bot.* 43; *am. n.* 185. 501. *Willd. bot.* 27. *t. 2. f. 23*.
- Furca. Cirrhus*. Divided into 3 parts. *L. am. n.* 385. 355.

- 'Calyx* as in *Alisma* and *Cliffortia*. *Phil. bot.* 68.  
*Style* as in *Clethra* and *Frankenia*. *Phil. bot.* 67.  
 743. *Triflorus*. Triflorous. *Peduncle* with 3 flowers. *Phil. bot.* 41.  
 744. *Trigonus*. Trigonous. *Trunk* with 3 prominent longitudinal angles. *L. am. n.* 52.  
 745. *Triglochis*. A seta terminated by 3 deflex aculei, as in *Myosotis Lappula*. *Obs.* 4968. A species of hamus. *Phil. bot.* 109.  
 746. *Trijugus*. Trijugate. *Leaf*. Pinnate with 6 folioles. *L. am. n.* 284.  
 747. *Trilocularis*. Trilocular. *Seedvessel* with 3 cells as in *Lilium*. *Phil. bot.* 69.  
 748. *Trinervatus*. Trinervate. *Leaf*. Nervose, with three ribs meeting behind the base. *L. am. n.* 223 and forming the margin of the leaf.  
 749. *Trinervis*. Trinervose. *Leaf* with 3 ribs meeting at the base of the leaf. *L. am. n.* 221.  
 750. *Trinus*. In threes. *Leaves* 3 from the joint of a branch. *L. am. n.* 120.  
 751. *Tripartitus*. Tripartite. *Leaf*. (*Calyx*.) Divided almost to the base into 3 segments. *Phil. bot.* 44.  
 752. *Tripetalus*. Tripetalous. *Corolla* with 3 petals as in *Alisma* and *Sagittaria*. *Phil. bot.* 64.  
 753. *Triphyllus*. Triphyllous. *Calyx* with 3 phylla as in *Tradescantia*. *Phil. bot.* 62.  
 754. *Triplinatus*. Tripinnate. *Leaf*. Trebly pinnate, several bipinnate folioles being affixed to a petiole. *L. am. n.* 290; *Phil. bot.* 48. t. 2. f. 80, *cop. in Bot. arr.* t. 8. f. 60.  
 755. *Triplinervis*. Triplinervose. *Leaf*. Nervose, with 3 ribs meeting above the base of the leaf. *L. am. n.* 222.  
 756. *Triqueter*. Triquetrous. *Trunk*. *Petiole*. *Peduncle*. With 3 sides quite flat. *L. am. n.* 53. 305. 434.  
*Leaf*. With 3 longitudinal flat sides, in a subulate leaf. *Phil. bot.* 46, 218. t. 1. f. 59; *am. n.* 266.  
 757. *Trispermus*. Trispermous. *Fruit* with 3 seeds as in *Euphorbia*. *Phil. bot.* 70.  
 758. *Triternatus*. Triternate. *Leaf* trebly ternate. When 3 biternate leaves are connected to a common petiole. *L. am. n.* 289; *Phil. bot.* 48. t. 2. f. 79, *cop. in Bot. arr.* t. 8. f. 59.

759. *Trivalvis*. Trivalve. *Seedvessel* with 3 valves as in *Viola Polemonium* and *Cistus Helianthemum*. *Phil. bot.* 69.

760. *Truncatus*. Truncate. *Leaf* terminated by a transverse line. *Phil. bot.* 44; *am. n.* 209. *Bot. arr. t.* 8. *f.* 63.

*Stigma* as in *Maranta*. *Phil. bot.* 68.

761. *Truncus*. Trunk. That part of a plant which produces the leaves and fructification. *Phil. bot.* 39. An organ serving for the multiplication of a plant. *L. am. vi.* 219. That part which connects the fructification to the root.

In trees generally solid, but in *Cecropia peltata* fistular with transverse septa.

762. *Tuber*. The winter quarters of a plant, solid. *Phil. a Spreng.* 95. 455. *t.* 6. *f.* 20. Root of *Orchis*.—*Gray i.* 49.

The tubera of the root of *Solanum tuberosum* and perhaps all may be considered as buds.

763. *Tuberculatus*. Tuberculate. *Branch* with tubercles as in *L. a Willd.* ii. 733. *Gray i.* 58.

*Pomum* as in *Momordica Balsamina*. *L. sp.* ii. 1433.

*Lichen*. *L. sp.* ii. 1606, species tuberculatae. See *Tuberculum*.

764. *Tuberculum*. Tubercle. A fructification of *Lichen* consisting of rough points apparently composed of powdery particles. *Phil. bot.* 222. *L. sp.* ii. 1607. *n.* 4—12.

765. *Tuberosus*. Tuberous. *Root* consisting of roundish bodies collected into a bundle as in *Paeonia Hemerocallis Helianthus (tuberosus) Solanum tuberosum Spiraea Filipendula* and the palmated *Orchises*. *Phil. Bot.* 38. 102. *t.* 6. *f.* 128, *cop. in Bot. arr. t.* 11. *f.* 7. Consisting of fleshy parts connected at the base by a thread. *L. am. n.* 12.

766. *Tubiformis*. Trumpetshaped. *Corolla* tubular below and towards the end gradually dilated into a patent limb as in *Varronia curassavica Azalea nudiflora* and several species of *Erica*.

767. *Tubulatus*. (Plin.) Tubulate. *Calyx, Corolla* with a tube.

768. *Tubulosus*. Tubular. *Leaf*. If cut transversely shewing a cavity within as in *Allium Cepa*. *Phil. bot.* 46. Concave or empty within. *L. am. n.* 263. Opposed to *fartus*, full. *Phil. bot.* 233.

(*Anthodium*.) When the corollae of all the (flowers) are tubular, and nearly equal. *Phil. bot.* 77.

769. *Tubus*. Tube. The inferior tubular part of a monopetalous corolla. *Phil. bot.* 52. t. 7. f. 142. a, *cop. in Bot. arr. t.* 4. f. 1. a.

770. *Tunica*. Tunic. The outer coat of a seed. Sometimes the only covering of the corculum, as in *Sedum Sem-pervivum* and *Cotyledon* 11 Feb. 16, *Salsola Kali*. *Obs.* 9622 and *Salix ulmifolia*. *Obs.* 10215.

*Testa Gaertn.* A term belonging to the animal kingdom.

Very thin not separable from the perisperm and becoming mucilaginous by steeping in *Plantago virginica*. *Obs.* 10240.

Composed of 2 layers, the outer fibrous with vertical fibres, the inner granular with orbicular granules, in *Adenantha pavonina*. *Obs.* 10038.

Opaque with a thick white parenchyma extending to the indusium, in *Iris foetida*. *Obs.* 9972.

Composed of a nearly transparent striate fibrous and a reticulate coat with thick grumous camphorlike parenchyma extending to the indusium in *Helenia Alhugas*. *Obs.* 10010.

Sometimes composed of 3 coats, an epidermis, an intermediate coat, and an inner coat as in *Sida graveolens*. *Obs.* 9993. Seeds from Wright.

Generally thicker than the indusium, but thinner in *Euonymus europaeus*. *Obs.* 3736 and *Celastrus verticillatus*. *Roxb. MS. Obs.* 9800.

Composed of vertical cylinders in *Tamarindus indica*. *Obs.* 8198, *Malva Gossypium* *Pentapetes Sida* and probably most of the *Malvaceae*. *Obs.* 9990—9994.

Bilocular, one of the cells empty the other containing the seed enveloped in the indusium in *Jussiaea exaltata*. *Obs.* 10196, and bilocular in some and unilocular in other seeds of *Ludvigia villosa*. *Obs.* 10197.

Veined in *Quercus Robur*. *Obs.* 6726, *Juglans angustifolia*. *Obs.* 8577, *Juglans regia*. *Obs.* 1343, Gos-

*sypium arboreum. Obs. 9991, and Cerinthe aspera. Obs. 3949, the veins in the last originating in the chalaza and extending towards but not communicating with the hilum.*

Has no opening except at or near the hilum, but in *Pentapetes phoenicea. Obs. 9990, there is an opening through which a mammillary process of the chalaza of the indusium projects.*

Generally of a uniform texture, but in *Polygonum sagittatum* and *P. Fagopyrum* it is readily divisible into 3 valves. *Obs. 9679. But this seed is perhaps a closed capsule.*

771. *Tunicatus.* Tunicate. *Bulb* composed of numerous coats as in *Allium Cepa. Phil. bot. 50. t. 6. f. 127, cop. in Bot. arr. t. 11. f. 2, and Hyacinthus orientalis. Phil. a Spreng. 456. t. 7. f. 27.*

*Trunk.* Invested by membranes. *L. am. n. 62.*

772. *Turbinatus.* Turbinate. *Calyx* obconic. *Giseke 86. Seedvessel* narrowed at the base as in *Pirus communis. Phil. bot. 224.*

773. *ulus* at the end of a word expresses a smaller size or less degree.

774. *Umbella.* Umbel. Several peduncles proceeding from the same center, and with an even circumference. *L. am. n. 419. A receptacle* elongated from one center into filiform peduncles of proportionate length. *Phil. bot. 54. A terminal verticillus.*

*Umbella simplex.* Simple Umbel. What is undivided as *Panax. Phil. bot. 54. 78, in which each peduncle bears a flower as in Cornus and Spiraea. Gray i. 115. t. 7. f. 9.*

*Umbella. Phil. a Spreng. 85, (but the fig. 455. t. 6. f. 26 is a compound umbel.)*

*Umbella composita.* Compound umbel. When all the peduncles bear an umbel at the end. *Phil. bot. 54. 79. t. 7. f. 135, cop. in Bot. arr. t. 6. f. 9. Willd. bot. 71. t. 3. f. 36. Gray i. 114. t. 7. f. 1. Phil. a Spreng. 455. t. 6. f. 26.*

775. *Umbellatus.* Umbellate. *Flower* in which the receptacle (rather peduncle) is divided into several peduncles proceeding from a center. *Phil. bot. 76.*

776. *Umbellula*. A partial umbel. *Phil. bot.* 78, forming a part of an umbella universalis or compound umbel. See *Phil. bot. t. 7. f. 135. b, cop. in Bot. arr. t. 6. f. 9. b.*
777. *Uncinatus*. Hooked. *Stigma* as in *Viola* and *Lantana*. *Phil. bot.* 68.
778. *Undulatus*. Undulate. *Leaf*. The disc ascending and descending convexly towards the margin. *Phil. bot.* 45. *Willd. bot. 31. t. 3. f. 39; t. 7. f. 197.*  
*Corolla* as in *Gloriosa*. *Phil. bot.* 64.
- Undatus*. *Leaf*. The disc bent alternately into obtuse folds. *L. am. n. 253.*
779. *Unguis*. Claw. The inferior part of a (petal of a) polypetalous corolla, fixed to the base of the lamina. *Phil. bot. 52. t. 7. f. 144. a, cop. in Bot. arr. t. 4. f. 11. a.*
780. *Unicapsularis*. Unicapsular. *Seedvessel* of one capsule as in *Lychnis* (*Delphinium Consolida* D. Ajacis and *D. aconiti* *L. a Murr.* 503, and most plants whose seedvessels are capsules.) *Phil. bot.* 68.
781. *Unilateralis*. Unilateral. *Racemus* with all the flowers inserted on one side. *L. am. n. 481.*
782. *Unilocularis*. Unilocular. *Seedvessel* of one cell as in *Trientalis* and *Primula*. *Phil. bot.* 69.
783. *Univalvis*. Univalve. *Capsule*. *Germen*. When there is no suture or only one.
784. *Universalis*. Universal. *Umbel* (whose branches) support umbellulae at their ends. *Phil. bot.* 54.
785. *Urceolatus*. Urceolate. *Corolla* inflated and swelling out all round as a jug or bason. *Phil. bot.* 223.  
*Stigma* of several species of *Viola*. *L. a Murr.* 803.
786. *Urens*. Stinging. *Trunk*. Sprinkled with stings. *L. am. n. 74.*
787. *Utricularis*. Utricular. *Scabrities*. *Phil. bot.* 109. See *Utriculus*.
788. *Utriculus*. A vessel full of a secreted liquor. *Phil. bot.* 111; *am. n. 373.*
789. *Vaginans*. Vaginant. *Leaf*. *Stipula*. The base forming a tube which invests the branch or stem as in *Polygonum* and *Rumex*. *L. am. n. 157. 338; Phil. bot. 49. t. 3. f. 99, cop. in Bot. arr. t. 9. f. 4. i.*



790. *Vaginatus*. Vaginate. *Trunk*. Invested by vaginæ of leaves. *L. am. n. 57*.
791. *Valvula*. Valve. The outside covering of a fruit. *Phil. bot. 53. t. 160. a, cop. in Bot. arr. t. 5. f. 14. a*. The whole of the paries of a capsule or germen in which there is no suture or only one suture, and that part of the paries of a capsule or germen which is between two sutures.
792. *Velum*. The partial involucrem of a Fungus extending from the stipes to the margin of the pileus. *Schaeffer*.  
*Volva. Phil. bot. t. 7. f. 139. b, cop. in Bot. arr. t. 1. H. a.*
793. *Venosus*. Veined. *Leaf*. When the veins are very much branched, exhibiting anastomoses to the naked eye. *Phil. bot. 45. t. 1. f. 52, cop. in Bot. arr. t. 7. f. 44*. With vessels variously divided. *L. am. n. 228*.
794. *Ventricosus*. Ventricose. *Spike*. Gibbous at the sides. *L. am. n. 466*.  
*Scapus, Leaf* as in *Allium fistulosum*. *L. sp. i. 432, Obs. 3745*.
795. *Verrucosus*. Warty. *Branch*. With fleshy prominences. *Jacq. ap. L. a Murr. 238. n. 4. Gray i. 58*.  
*Papillosus. L. am. n. 234*,
796. *Versatilis*. Versatile. *Anthera* fixed by one of its sides to the filament. *Phil. bot. 223*, and so poised as to turn on it like the needle of a compass, as in *Vitex* *Linnaea* and *Geranium*, *Berk.*
797. *Verticalis*. Vertical. *Leaf* as in *Lactuca Scariola*, *L. sp. ii. 1119; mant. 457; a Murr. 713*. The margin of the leaf opposit to the stem as in *Iris Pseudacorus* *Ixia crocata* and *Acacia armata*.  
 Segments of the *calyx* of *Gardenia florida*. *Linn. nat. ii. 189; a Reich. i. 592*.  
*Stigma* of *Orchis* and *Ophrys ovata*.
798. *Verticillatus*. Verticillate. *Branches. Peduncles*. Several surrounding the trunk at the joints. *L. am. n. 99. 416*.
799. *Verticillus*. Whirl. A number of flowers nearly sessile surrounding the stem like a ring as in *Marrubium*, *Phil. bot. 41. 112. t. 9. f. 166, cop. in Bot. arr. t. 6. f.*

11. Several flowers surrounding the stem in a ring like manner. *L. am. n. 446.*
800. *Vesicularis*. Vesicular. *Scabrities* as in Mesembryanthus Aizoon and Tetragonia. *Phil. bot. 109.*
801. *Villosus*. Villose. *Stem*. Pubescent with soft villi as in Tomex and Rhus. *Phil. bot. 40.*  
*Leaf* covered with soft hairs. *L. am. n. 237.*  
*(Anthodial) receptacle* as in Andryala. *Phil. bot. 71.*
802. *Violaceus*. Violetcoloured. *Phil. bot. 244.*
803. *Virgatus*. Rodlike. *Trunk*. With weak unequal smallish branches. *L. am. n. 89.*
804. *Viridis*. Green. *Phil. bot. 244.* *Corolla*. 3 inner petals with 6 green stripes on the inner side and 2 green spots on the outerside in Galanthus nivalis. *Obs. 10364.*
805. *Viscidus*. Viscid. *Leaf* covered with an adhesive moisture. *L. am. n. 236; Phil. bot. 44.*
806. *Viscositas*. The quality of a viscous liquor. *L. am. n. 378.*
807. *Vitreus*. Vitreous, is given as a shade of hyalinus in *Phil. bot. 243*, probably meaning some slight tinge of green or glaucous.
808. *Volubilis*. Twining. *Trunk*. Ascending spirally round other bodies. *L. am. n. 46; Phil. bot. 39. 103. t. 4. f. 115, cop. in Bot. arr. t. 10. f. 5.*  
*—to the left*. In a direction corresponding to the apparent motion of the sun, as in Humulus Polygonum Convolvulus, Lonicera Periclymenum, Tamus Dioscorea Rajania Menispermum Cissampelos and Hippocratea communis. *Phil. bot. 39. 103.*  
*—to the right*. In a direction contrary to the apparent motion of the sun, as in Convolvulus Ipomoea Basella Phaseolus Dolichos Glycine Clitoria Securidaca Cynanche (some foreign) Euphorbias Periploca Ceropegia Tragia Tournefortia and some species of Eupatorium, *Phil. bot. 39. 103.*
809. *Volva*. The universal involucre of a Fungus inclosing the whole of the plant except the root, lacerating transversely. The lower half is figured in *Phil. bot. t. 7. f. 139*, the membrane at the base of the stipes, and *cop. in Bot. arr. t. 1. H. Willd. bot. 53. 473. t. 1. f. 7. Phil. a Spreng. 97. 458. t. 9. f. 19*, the membrane at the base of the stipes.

# ENGLISH TERMS AND TERMS OMITTED.

*Abortivus*. Abortiv. *Flowers, Stamina, Antherae, Ger-*  
*men*, which apparently capable of producing perfect  
 seed or pollen do not.

*Acaulis*. Stemless. *Plant* without a stem.

*Acinus*, plural *Acini*, the partial berries composing the  
 compound berry of *Rubus*. *L. gen.* 254. *Gaertn.* i. 350.  
*t.* 73. *Willd. bot.* 108.

*Ashcolour*d, *Cinereus*. *n.* 112.

*Ater*. *n.* 52. Dusky of the English ornithologists. Lin-  
 naeus characterises *Fulica atra* and *aterima* as having  
 a blackish body, but F. Aethiops he characterises as  
*nigra*. *Ater* according to Facciolati is less black than  
*niger*. *Atra nox* of the Latin poets is the dusky night  
 of the English.

*Back*. See *Dorsum*.

*Berry*. *Bacca*. *n.* 57.

*Biflorus*. Biflorous. *Peduncle* with 2 flowers. *Phil. bot.*  
 41.

*Bipartitus*. Bipartite. *Leaf, (Calyx.)* Divided nearly to  
 the base into 2 segments. *Phil. bot.* 44. *Gray* i. 71.

*Black*. *Niger*. *n.* 430.

*Bloom*. *Ros.* *n.* 607.

*Blossom*. *Corolla*. *n.* 156.

*Blue*. *Caeruleus*. *n.* 86.

*Bowed*. *Arcuatus*. *n.* 42.

*Branch*. *Ramus*. *n.* 582.

*Bristles*. *Setae*. *n.* 648\*.

*Brunneus*. Brown.

*Bud*. *Gemma*. *n.* 295.

*Bulb* of *Fritillaria imperialis*. *Phil. a Spreng.* 456. *t.* 7.  
*f.* 26; of *Hyacinthus orientalis*. *Phil. a Spreng.* 456.  
*t.* 7. *f.* 27.

Bulb of a spike, as in *Globba marantina*. *Obs.* 10007.

*Calyx*. In general contiguous to the corolla stamina or  
 pistil, but in *Silene*, and I think some others of the

- Caryophylleae distant, the corolla stamina and pistil being supported on a pedicle.
- Capsula* in *Reseda* and *Datisca* never closes. *Reseda* "capsula non clausa sed hiantes semper." *L. gen.* 242.
- Datisca*. "Capsula pervia." *L. a Murr.* 892.
- Cell.* Loculamentum. *n.* 396.
- Claw.* Unguis. *n.* 779.
- Cloven.* Fissus. *n.* 261.
- Clusterd.* Congestus. *n.* 139.
- Cohaerens.* Coherent. *Antherae* as in the class *Syngenesia*, *Viola* *Lobelia* and *Gloxinia speciosa*. *Obs.* 11755.
- Coma.* *Gray* i. 105. In *Asclepias* and *Tamarix*.
- Compleatus.* Complete. *Flower* composed of pistil stamina nectaria corolla and calyx as *Ranunculus*.
- Cone.* Strobilus. *n.* 694.
- Contorted.* Tortus. *n.* 735.
- Corculum* generally similar in the same genus, but in *Polygonum sagittatum* and *P. Convolvulus* it is spatulate with 2 flat parallel cotyledons and a projecting rostellum but in *P. Fagopyrum* the cotyledons are folded back in different directions, enveloping the rostellum. *Obs.* 9679. 9680.
- The only part of a seed capable of vital action, as in germination it is the only part which appears to increase in size. The life of the envelopes is probably similar to that of the projecting parts of the hair nails feathers and scales of animals. 4 May 18.
- Crackd.* Rimosus. *n.* 604.
- Creeping.* Repens. *n.* 593.
- Crescentshaped.* Lunatus. *n.* 401.
- Crooked.* Incurvus. *n.* 342.
- Crowded.* Confertus. *n.* 136.
- Cylindraceus.* Cylindric. *Calyx* of *Dianthus*. *L. gen.* 225.
- Divergens.* Diverging. When branches or segments in the same plane are patent with respect to each other.
- Dorsum.* Back. The side of any part which is most remote from the center of the plant, the other side of which part is the face. See *Folium* *n.* 275.
- Dotted.* Punctatus. *n.* 543.
- Double.* Plenus. *n.* 516.

- Dull.* Opacus. *n.* 450.  
*Embedded.* Nidulans. *n.* 429.  
*Empty.* Inanis. *n.* 333.  
*Entire.* Integer. *n.* 351.  
*Evergreen.* Sempervirens. *n.* 640.  
*Exaristate.* Muticus. *n.* 424.  
*Facies.* Face. The side of any part opposit to the center of the plant, the other side of which part is the back. See Folium *n.* 275.  
*Falcatus.* Falcate. When a part on one side is slightly curvd. *Link. phil.* 29.  
*Farina.* Pollen. *n.* 522.  
*Filligreed.* Daedaleus. *n.* 183.  
*Flat.* Planus. *n.* 515.  
*Fleshcolourd.* Incarnatus. *n.* 336.  
*Fleshy.* Carnosus. *n.* 100.  
*Flexible.* Laxus. *n.* 380.  
*Floating.* Natans. *n.* 425.  
*Florescentia.* Florescence. The period of flowering, during which the pollen is dispersd from the antherae and absorbd by the stigmata.  
*Flower.* Flos. *n.* 269.  
*Flower compound.* See Anthodium. *n.* 36.  
*Frosted.* Pruinatus. *n.* 536.  
*Full.* Farctus. *n.* 245.  
*Furrowed.* Sulcatus. *n.* 708.  
*Fuscous.* Fuscus. *n.* 291. Blackish brown as a brown horse, and the dead leaves of *Pirus communis*.  
*Galea.* Upper lip of a ringent corolla. *L. am.* *n.* 564.  
*Glittering.* Lucidus. *n.* 400.  
*Globosus.* The anthodium of *Leontodon* in seed.  
*Green.* Viridis. *n.* 804.  
*Hairs.* Pili. *n.* 509.  
*Halved.* Dimidiatus. *n.* 210.  
*Hatchetshaped.* Dolabriformis. *n.* 228.  
*Heartshaped.* Cordatus. *n.* 151.  
*Hoary.* Canus. *n.* 94 synonymous with *Incanus*. 334.  
*Horned.* Cornutus. *n.* 155.  
*Horny.* Corneus. *n.* 154.  
*Immersed.* Demersus. *n.* 196, and *Submersus.* *n.* 704 which are synonymous.

*Incisus*. Cut. *Leaf*. *Calyx*. Slightly cloven, not much below the margin. See *L. a Giseke* n. 198.

*Jaws*. Rictus. n. 602.

*Joint*. Geniculum. n. 297.

*Jointed*. Articulatus. n. 46.

*Kernel*. Nucleus. n. 434.

*Knotty*. Nodosus. n. 433.

*Lanugo*. Down, Very fine soft long hairs, as in the flowers of some species of *Poa*. See *L. a Gis*. 149.

*Dec. theor.* 375, makes it synonymous with *lana*,

*Latticed*. Fenestratus. n. 254.

*Leadcoloured*. Plumbeus. n. 518.

*Leaf*. Folium. n. 275.

*Leafy*. Foliosus. n. 274.

*Levigate*. Laevis. n. 370. Used to avoid the ambiguity of smooth.

*Limber*. Laxus. n. 380.

*Loose*. Solutus. n. 661.

*Male*. Masculus. n. 406.

*Mealy*. Farinosus. n. 246.

*Milkwhite*. Lacteus. n. 368.

*Naked*. Nudus. n. 436.

*Niger*. n. 430. Black, as ebony and jet, and the seeds of *Dictamnus* and *Dianthus*. "Ebenus nigri splendoris." *Plin.* l. 12. c. 4. p. 302. l. 12. "Gagetes niger est." *Plin.* l. 36. c. 19. p. 874. l. 7. That *niger* and *ater* are different is evident from *Plin.* l. 15. c. 18. p. 366 where we have *Ficus nigra* and *atras pediculo longo*, in the same chapter. The opinions of *Willd. bot.* 199. n. 31, respecting *niger* and *ater* erroneous. Gaertner also describes the seeds of *Dictamnus* and *Dianthus* as *atrous*.

*Nodding*. Nutans. n. 438.

*Offset*. Propago. n. 535.

*Opening*. Dehiscens. n. 194.

*Pendant*. Dependens. n. 198. *Pendulus*. n. 490.

*Permanent*. Persistens. n. 502.

*Pink*. Roseus. n. 608.

*Pitted*. Lacunosus. n. 369.

*Plaited*. Plicatus. n. 517.

*Powdery*. Pulverulentus. n. 541.

- Prickle.* Aculeus. *n.* 7.  
*Projecting.* Exertus. *n.* 243.  
*Red.* Ruber. *n.* 613.  
*Regular.* Regularis. *n.* 589.  
*Ribless.* Enervis. *n.* 235.  
*Ridgd.* Liratus. *n.* 393.  
*Ridge.* Lira. *n.* 392.  
*Rolled-in.* Circinalis. *n.* 113.  
*Root.* Radix. *n.* 576.  
*Rough.* Asper. *n.* 49. Scaber. *n.* 622.  
*Round.* Rotundus. *n.* 612.  
*Roundish.* Subrotundus. *n.* 706.  
*Rufus.* Rufous. Reddish brown.  
*Saffroncolourd.* Croceus. *n.* 170.  
*Scarlet.* Coccineus. *n.* 121.  
*Scymetarshaped.* Acinaciformis. *n.* 5.  
*Seed.* Semen. *n.* 631.  
*Seedvessel.* Pericarpium. *n.* 498.  
*Segments.* Laciniae. *n.* 365.  
*Septembracteate.* Heptaphyllus. *n.* 316.  
*Shining.* Nitidus. *n.* 431.  
*Shoot.* Surculus. *n.* 716.  
*Snow-white.* Niveus. *n.* 432.  
*Soft.* Mollis. *n.* 411.  
*Spur.* Calcar. *n.* 88.  
*Square.* Quadratus. *n.* 547.  
*Stem.* Caulis. *n.* 104.  
*Stings.* Stimuli. *n.* 684.  
*Straight.* Rectus. *n.* 585.  
*Tendril.* Cirrus. *n.* 117.  
*Thickening.* Incrassatus. *n.* 339.  
*Thorn.* Spina. *n.* 670.  
*Throat.* Faux. *n.* 251.  
*Tree.* Arbor. See Arboreus. *n.* 41.  
*Twining.* Volubilis. *n.* 808.  
*Twoedged.* Anceps. *n.* 30.  
*Unarmd.* Inermis. *n.* 345.  
*Unequal.* Inaequalis. *n.* 332.  
*Upright.* Erectus. *n.* 240.  
*Vaulted.* Fornicatus. *n.* 278.  
*Veinless.* Avenis. *n.* 54.

*Velvety.* Holosericeus. n. 325.  
*Warty.* Verrucosus. n. 795.  
*Whirl.* Verticillus. n. 799.  
*Wing.* Ala. n. 21.  
*Winged.* Alatus. n. 22.  
*Withering.* Marcescens. n. 405.  
*White.* Albus. n. 28.  
*Woody.* Lignosus. n. 384.  
*Wool.* Lana. n. 374.  
*Wreathed.* Contortus. n. 145.  
*Yellow, deep.* Luteus. n. 402. *Flavus.* n. 266.  
*pale.*



**ABBREVIATIONS EXPLAINED,  
NAMES OF GARDENS AND PERSONS, AND  
TITLES OF BOOKS**

Not enumerated in the second edition of the Botanical  
Arrangement and the Botanical Materia Medica.

- Ach. lich.* Acharii lichenographia universalis. 1810. 4to.  
*Ach. meth.* Acharii methodus lichenum. 1803. 8vo.  
*Ach. prodr.* Acharii lichenographiae suecicae prodromus. 1798. 8vo.  
*Ach. syn.* Acharii synopsis lichenum. 8vo. 1814. (d. 1819.)  
*Act. soc. med. haun.* Vol. 1 & 2. 1777. 1779. 8vo.  
*Act. reg. soc. med. haun.* Vol. 1—4. 1783—1803. 8vo.  
*Ag. sp. alg.* Agardh species algarum. Vol. 1. 1821. 1823. 8vo.  
*Ag. syn.* Agardh synopsis algarum Scandinaviae. 1817. 8vo.  
*Amsterdam garden* illustrative of the past age of botany.  
*Bakewell bath garden* cultivated by Mr. Watson, author of Strata of Derbyshire. 4to. and of Matlock. 4to.  
*Baker*, Mr. T. rector of Whitburn, near Sunderland in Durham. The specimens given and lent to which his name is subjoined were collected in a tour through France Switzerland and Italy to Poestum.  
*Banks* (b. 1748, d. 1820.) Why have we not a life of this patron of natural history. Why are not the plates he engraved and their descriptions by his librarians given to the world at the expence of a society of subscribers, who may perform for natural science what the Dilettanti society has done for the illustration of ancient art. The descriptions should be published in 8vo. The plates are in largish folio. L'Heritiers to the best of my recollection are engraved on the model of them.  
*Bart. amer.* Bartons flora of North America. Vol. 1—3. t. 1—106. 1821—1823. 4to.  
*Bart. phil.* Bartons compendium florae philadelphicae. 2 vols. 1818. 12mo.

- Bath garden** on oolitic limestone or lias, cultivated by Sole, apothecary and author of *Menthae britannicae*, who travelled every year over some part of the island in pursuit of indigenous plants.
- Baumg. lips.** Baumgarten flora lipsiensis. 1790. 8vo.
- Baumg. transylv.** Baumgarten enumeratio stirpium Transylvaniae. Tomi 3. 1816. 8vo.
- Bautry garden** in Nottinghamshire, cultivated by Dowager Lady Galway.
- Beauv. agrost.** Beauvois agrostographie. 1812. 8vo. with 25 plates in 4to. (d. 1820)
- Belmont garden** in Staffordshire, the seat of J. Sneyd. See Soho garden and *Bot. arr. ed. IV. i. p. xiv.* On gritstone.
- Berg. cap.** Bergii plantae capenses. 1767. 8vo. (d. 1790)
- Berk.** Berkenhout's botanical lexicon. 1766. 12mo.
- Bess. galic.** Besser flora galiciae pars I. II. 1809. 12mo.
- Bess. volhyn.** Besser enum. pl. Volhyniae &c. 1822. 8vo.
- Betcke** in Valerianellas. 1826. 4to.
- Bieb.** Bieberstein flora taurico-caucasica. Tomi 3. 1808. 1819. 8vo. (b. 1760 d. 1826)
- Big.** Bigelow florula bostoniensis. 1824. 8vo.
- Billerb.** Billerbeck flora classica. (in Germ.) 1824. 8vo.
- Bob. hort.** (Bobarti Jacob patris) Hortus oxoniensis. 1648. 12mo.
- Boenn.** Boenninghansen flora monasteriensis. 1824. 12mo.
- Bosworth garden**, in Leicestershire, cultivated by Dr. Power, removed to Lichfield.
- Bluff & Fing.** Bluff & Fingerhuth compendium florae Germaniae. Tom. I. & II. 1825. 16mo.
- Blymhill garden** in Staffordshire, between Penkridge and Newport, on sand and gravel, cultivated by the amiable rector Dickenson who travelling in France with C. Darwin the author of experiments on Puss, brought home many of the aromatic plants of Montpellier from Gouan.
- Bradl. mat. med.** Bradleys materia medica, 8vo.
- [**Brandt.**] Flora berolinensis. 1825. 12mo.
- Bromehouse garden** between Chesterfield and Dronfield on gritstone, cultivated by Miss Bromehhead an investigator and collector of plants.

*Brown, Rob.* Brown prodromus florae novae Hollandiae. ed. II. Vol. I. 1827. 8vo.

*Burch.* Burchells travels in southern Africa. 1824. 4to.

*Bütret* de la taille raisonne des arbres fruitiers. 1809. 8vo. The best treatise on the subject according to Thouin.

c. cap. chapter.

*Camd. by Gough.* The greater number of the places of growth of plants supplied by Mr. E. Forster jun. *Turn. & Dillw.* i. 332. When will our antiquaries get rid of their passion for folios and quartos, and print in portable volumes which may accompany a traveller. If reprinted in fol. the editor will do well to consider the convenience of the reader who consults the index, by following Gibson in paging the columns.

*Chapel Allerton garden* near Leeds, cultivated by R. Salisbury, probably removed to near London.

*Chelsea garden* in Middlesex, in the valley of the Thames, does great credit to the London company of apothecaries.

*Clapham garden* cultivated by Mr. Bewick, I think a merchant of London.

*Clayt. a Gron.* ed. I. 1743. 8vo; ed. II. 1762. 4to. (Granovius b. 1690, d. 1762)

*Clifton garden* near Bristol hot wells, on redland limestone, cultivated by Lady de Clifford.

*Codnor garden* near Alfreton in Derbyshire, on gritstone, cultivated by the late Miss Wood a most zealous cultivator of hardy plants, the whole surface of whose garden was covered with curious plants contiguous as in a state of nature and struggling for preeminence or life. Her art of gardening consisted in extirpating weeds and preventing one plant from destroying its neighbours.

*Comoll.* Comollii prodromus provinciae comensis. 1824. 8vo.

*Crome garden* near Upton in Worcestershire on blue lias, cultivated by G. W. Coventry Earl of Coventry and his gardener Graeffer afterwards partner with Gordon of Mile end nursery and at length gardener to the King of Naples.

**Cram.** Crameri dispositio plantarum quae in systemate linnaeano eas classes non obtinent in quibus secundum numerum et structuram genitalium reperiri debent. 1803. 8vo.

**Crantz. mat. med.** 1762. 8vo. (b. 1792 d. 1799)

**Curt. mat. med.** Curtiss assistant plates to the materia medica. t. t. 20. 1786. 12mo. Reduced figures. (d. 1799)

**Darley garden** on gritstone in the valley of the Darwent between Bakewell and Matlock in Derbyshire. The collection was formed by T. Knowlton the celebrated gardener of the last century and cultivated by him and his grandson the present owner at Lonsborough in the E. riding of Yorkshire, whence it was removed to Edensor in Derbyshire and finally to Darley.

**Dav.** Daviess welsh botanology. 1818. 8vo. The first part is a flora of Anglesey and the second in Welsh an alphabetic list of the Welsh names of vegetables. The author was rector of Aber in Caernarvonshire but resided at Beaumaris in Anglesey, where I botanised with him for 3 or 4 weeks, looking through his herbarium. He gave me duplicates of the rarer phenogamous plants. I hope his heirs have attended to my exhortations to keep it in a room where there is a constant fire, for Anglesey is a flat island overrun with *Iris Pseudacorus*. The plants were very much eaten by the brown *Dermestes* though kept in a closet adjoining to a sitting room up stairs in which there was a constant fire.

**Dec. monsp.** Decandolle catalogus horti monspeliensis 1813. 8vo.

**Dec. organ.** Decandolle organographie vegetale. Tomes 2. 1827. 8vo.

**Dec. prodr.** Decandolle prodromus systematis naturalis regni vegetabilis. Tom. I. II. III. 1824—1828. 8vo. The author follows Willdenow in marking what plants he had seen living or dried, also distinguishing them whether cultivated or indigenous.

**Dec. propriet.** Decandolle sur les proprietes medicales des plantes. 1816. 8vo.

**Dec. syst.** Decandolle regni vegetabilis systema naturale. Vol. I. II. 1818. 1821. 8vo.

VOL. I.

- Dec. theor.* Decandolle theorie elementaire de la botanique. 1819. 8vo.
- Dec. & Dub.* Decandolle botanicon gallicum a Duby. Tom. 1us. 1828. 8vo.
- Dennstedt* nomenclator botanicus. Tomi 2. 1810. 12mo. Superseded by Steudel.
- Desf. tabl.* Desfontaines tableau du jardin du roi. 2<sup>de</sup> edit. 1815. 8vo.
- Desp.* Desportes rosetum gallicum. 1828. 8vo.
- Dethk.* Dethharding plantae megalopolitanorum. 1828. 8vo.
- Dierb.* Dierbach flora heidelbergensis. 1819. 16mo.
- Donn. by Lindl.* Hortus cantabrigiensis. ed. 11th. 1826. 12mo. The editor informs us that after the 4th or 5th edit. the author enlarged it by adding the names of all the ornamental plants known to be cultivated in the British gardens. The 5th edit. given me by Davies of Trin. coll. incapable of countenancing a fraud, I regard as the catalogue of the Cambridge garden.
- Donn. by Pursh.* Hortus cantabrigiensis. ed. 8th. 1815. 12mo.
- Edinburgh garden* on basalt, cultivated by Hope. Wright sent me a large collection of grasses gathered in the garden since the death of Hope. The names are not in Wrights handwriting.
- Engl. bot.* English botany by Sowerby and Smith, a collection of figures of the plants of the British isles. The specimens were procured drawn engraved and coloured by Sowerby and the observations written by Smith mostly residing at a distance. (Sowerby d. 1822. Smith d. 1827.)
- Eschenb. nect.* de usu nectariorum. 1776. 4to.
- Eschweil. lich.* Eschweileri systema lichenum. 1824. 4to.
- Ewell grange garden* near Bromsgrove in Worcester-shire, on red ground, cultivated by the late Earl of Plymouth.
- Eysenhardt obs.* in floram prussicam. 1828. 4to.
- Ferbers travels* through Italy. 1776. 8vo.
- Forst. T. tonbr.* Flora tonbrigensis. 1816. 12mo. In English.
- Fothk. cat.* A catalogue of the collection of hot house and green house plants late the property of J. Fothergill

**M. D.** which will be sold by auction 20 Aug. 1791. 8vo.  
This collection was thrown into lots by Lee the numbers corresponding to those of the manuscript catalogue of Fothergills garden in my possession drawn up by me at the request of Fothergills executors. See *Letts. apt.*

**Fothergills works.** 1784. 4to.

**French gard.** French gardiner, translated from the French by Evelyn. 1672. 12mo.

**Fries claus.** Fries clenchus fungorum. Vol. I. II. 1823. 8vo.

**Fries novit.** Fries novitiae florae suecicae. Pars i—vii. 1814—1823. 4to.

**Fries mycol.** Fries systema mycologicum; Vol. I. II. 1821. 1822. 1823. 8vo.

**Fries orb. veg.** Fries systema orbis vegetabilis. 1825. 8vo.

**Fruit gard.** The fruit gardener. 1768. 8vo. The author appears to have been resident in Scotland.

**Gaertn. fil. carp.** Vol. III. C. F. Gaertneri carpolog. Vol. III. t. 181—225. 1805—7. 4to. (Gaertn. Jos. b. 1732 d. 1791.) The Carpologia stands in need of an index to the introduction almost as much as Haller's elem. physiologiae.

**Gateshead nursery** in the county of Durham, on coal measures? cultivated by Mr. Fala and son.

**Gaud. helv.** Gaudin flora helvetica. Tomi 4. 1828. 1829. 8vo.

**Gelsibrand, M.** student of medicine in the university of Vienna.

**Gil. dem.** Gilibert demonstrations elementaires de botanique. ed. III<sup>me</sup> (by de la Tourette and Gilibert.) 3 tomes 1787. 8vo.

**Gisborne Mr. T.** of Yoxal lodge in Staffordshire, prebendary of Durham and author of treatises on morals.

**Gray.** Grays natural arrangement of British plants. 2 vols. 1821. 8vo. The explanation of botanical terms from p. 36 to p. 235 with 21 plates, would be very useful to every practical botanist if the paragraphs were numbered with an index subjoined referring to the paragraphs.

**Gmel. C. bad.** Gmelin C. flora badensis alsatica. Tomi 4. 1806. 1808. 1826. 8vo.

- Grev.* Grevilles flora edinensis. 1824. 8vo.  
*Grew roots.* Grews idea of a phytological history. 1673. 12mo.  
*Gunther &c.* Gunther Grabowski et Wimmer enumeratio stripium Silesiae. 1824. 12mo.  
*Hagenb.* Hagenbach flora basileensis. Vol. I. 1821. 16mo.  
*Hall* of Newton Cartmel near Ulverston. See *Bot. arr.* i. p. xi. I consulted his herbarium in the possession of his widow in Kendal.  
*Halifax garden* on gritstone cultivated by Mr. Rawson.  
*Handsworth nursery* E. of Sheffield on gritstone, cultivated by Littlewood and now by Messrs. Holmes and Fisher.  
*Ham. F. & Don.* Hamilton, F. & Don, Dav. prodromus florum nepalensis. 1825. 12mo.  
*Ham. Gul.* Hamilton, Gul. prodromus plantarum Ind. occid. 1825. 12mo.  
*Hammersmith nursery* in the valley of the Thames cultivated by James Lee author of the introduction to botany and by Messrs. Lee and Kennedy.  
*Hasland garden* near Chesterfield cultivated by Mr. Claughton and sons.  
*Haw. rev.* Haworth revisiones plantarum succulentarum. 1821. 12mo.  
*Haw. saxifr.* Haworth saxifragearum enumeratio. 1821. 12mo.  
*Haw. succ.* Haworth synopsis plantarum succulentarum. (Germ. ed.) 1819. 8vo.  
*Haw. suppl.* Haworth supplementum plantarum succulentarum. 1819. 12mo.  
*Hegetschweiler* de seitamineis et. Glycine heterocarpa. 1813. 4to.  
*Heise, Dr.* physician in Dresden.  
*Hell.* Heller flora wurceburgensis. Tomi 2. 1810; suppl. 1815. 8vo.  
*Henck.* Henckel a Donnersmark nomenclator botanicus. 1803. 1806. 8vo. Superseded by Stendel.  
*Heringhay garden* in Middlesex cultivated by Mr. Grey, contains many very rare plants.  
*Highfield garden* on gritstone, cultivated by Mr. Eyre and afterwards by Mrs. Thomas who removed thither plants cultivated in Chesterfield.

- Hill. brit.* Hill, J. flora britannica. 1759. 8vo.
- Hirtel, M.* assistant apothecary to the Elector of Saxony.
- Hollefear* See Bot. arr. i. p. xi. collected the plants of Worcestershire to which his name is subjoined, at Severn Stoke and Crome, when curate. The cultivator of Crome garden appointed him to the vicarage of Wolvey in Leicestershire, when relinquishing the study of nature and presenting me with his herbarium he gave himself up wholly to parochial duties.
- Hoph. glott.* Hopkirks flora glottiana, a catalogue of plants on the banks of the Clyde and neighbourhood of Glasgow. 1818. 8vo.
- Hook. scot.* Hookers flora scotica. 2 vols. 1821. 8vo.
- Horn.* Hornemann hortus hafniensis. Tomi 2. 1813. 1815. Suppl. 1819. 12mo.
- Hort. tr.* Transactions of the horticultural society of London. 1812—4to. This work would be more useful if printed in 8vo with figures of the larger plants in a separat volume in folio of the size of Jacquin, following Jacquins example in his *coll.* and *ic.*
- Hort. kew. ed. II.* Hort. kewensis 2nd edit. enlarged by W. T. Aiton. 5 vols. 1810—1813. It is not properly an edit. the descr. and plates of the former work being omitted. Nothing is said in either publication of the founders of the garden.
- Hort. kew. epit.* Epitome of the 2nd edit. of Hortus kewensis for the use of practical gardeners by W. T. Aiton. 1814. 12mo. Addenda at the end contain the plants introduced subsequent to the publication of the 2nd edit. of Hort. kew.
- Host. A.* Host flora austriaca. Vol. I. 1827. 8vo.
- Hudson* apothecary in Panton street. He shewed me Peloria. The destruction of his herbarium and cabinet of insects by fire was a national loss and which Davies told me either caused or hastened his death.
- Islington garden* in Middlesex, cultivated by W. Pittcairn physician, much employed in the city.
- Jacquin, Baron* eldest son of Jacquin, author of works on botany ornithology and chemistry,
- Johnson, Dr.* of Coxbench near Derby, author of Animal chemistry, and of the greater part of the places of growth of plants in Pilkingtons Derbyshire. The



American specimens to which his name is subjoined were gathered on Long island; the neighbourhood of New York, Trenton, Philadelphia, Lancaster (with Muhlenberg,) Harrisburgh, Sunbury, Northumberland, where he visited Priestley, whence he passed 300 miles up the Susquehana, returning by the same course to New York. The European specimens were collected in Switzerland.

*Johnson, W. chem.* Animal chemistry by W. Johnson M. D. 3 vols. 1803. 8vo.

*Kaulf.* Kaulfuss filices. 1824. 8vo.

*Kew garden* in Surry, in the valley of the Thames, laid out with great taste. Aiton the father shewed it me introduced by a letter from Curtis. He explained to me the plan of the catalogue which appeared some years after under the title of Hort. kew. Aiton carried his specimens and doubts to Banks's library as I did those of the Upton garden, where they were examined and resolved by the polite and candid Solander, as his manuscript descriptions and specific characters in the British museum will testify. (Ait. W. b. 1731 d. 1793.)

*Knapp.* Knapps gramina britannica. 1804. t. 119. 4to.

*Knapps journ.* Journal of a naturalist. 1829. 8vo.

*Koel.* Koeleri descriptio graminum Galliae et Germaniae. 1802. 12mo.

*Krau.* Kraueri prodromus florae lucernensis. 1824. 16mo.

*Krock.* Krockeri flora silesiaca. Tomi 4. 1787—1823. 8vo.

*Kunth. aequin.* Kunth synopsis plantarum aequinoctium orbis novi. Tomi 4. 1822—1825. 8vo.

*Lam. & Dec.* De Lamarck & De Candolle flore française. Tomes 5. 1815. Troisième édit. 8vo.

*Lam. & Dec. syn.* De Lamarck & De Candolle synopsis plantarum in flora gallica descriptarum, 1806. 8vo.

*Lambeth garden* in Lambeth marsh in the valley of the Thames, cultivated by Curtis who removed it to Brompton.

*Lawr. ros.* Roses drawn by Miss Lawrance. fol.

*Lawr. gard.* Lawrence on gardening. 2 parts 1793. 1796. 8vo.

*Lawr. kal.* Lawrences fruit garden-kalendar. 1796. 8vo.

- Leske** a general naturalist, one of the authors of the commentarii de rebus of Leipsic the last Latin review of books, and of travels in Saxony and other works in German. Died rather early in life. The specimens to which his name is subjoined gathered chiefly in Saxony and Lusatia.
- Lestib.** Botanographi belgique par F. J. & Them. Lestiboudois. 2 tomes. 1827. 8vo.
- Letts. upt.** Hortus uptoniensis in Fothergills works 4to p. 493. "Though I have endeavoured" says Lettsom "to render the catalogue as complete as possible I am aware of the possibility of many inaccuracies and defects, but at the same time I am conscious that I spared no labour to prevent them." As every plant enumerated is marked as kept in the stove or greenhouse it is apparently the sale catalogue of the hot-house and greenhouse plants sold on the 20th of Aug. 1781 thrown into an alphabetic form. See *Foth. cat.* This volume of Fotherg. by Letts. I saw for the first time a few years ago being with many others the gift of Wright.
- Leyden garden** cultivated by Hermann Boerhaave and Van Royen father and son, and the gardener Meerburg author of icones pictae.
- Lichfield garden.** Cultivated by J. Saville vicar choral in Lichfield cathedral and on his decease incorporated with Mayfield garden. (b. 1786 d. 1803.) See Anna Sowards letters.
- Lichtenstein** index Linn. sp. a Willd. tomis IV. 1814. 8vo.
- Lieut.** Lieutaud precis de la matiere medicale. Tomes 2. 1781. 8vo.
- Lindl. ros.** Lindley rosarum monographia. 1820. 8vo.
- Link. elem.** Link elementa philosophiae botanicae. 1824. 8vo.
- Link. enum.** Link enumeratio plantarum hort. berolinensis. Tomi 2. 1821. 1822. 8vo.
- Link. gett.** Link florae gettingensis specimen. 1790. 8vo.
- Link. hort.** Link hortus berolinensis. Tom. I. 1827. 8vo.
- Link. phil.** Link philosophiae botanicae prodromus. 1798. 12mo.

*L. am.* Elmgren termini botanici in *L. am.* vi. 217, of inferior authority to that of phil. bot. See Explanation of terms. n. 515.

*Linn. bibl.* Linnaei bibliotheca botanica. 1736. 12mo.

*Linn. class.* Linnaei classes plantarum. 1738. 8vo.

*Linn. crit.* Linnaei critica botanica. 1737. 8vo.

*Linn. faun.* Linnaei fauna suecica. ed. II. 1761. 8vo.

*Linn. fund.* Linnaei fundamenta botanica. 1736. 12mo, and repr. in Alston. ind. pl. off.

*Linn. gen.* ed. I. 1737; ed. II. 1743.

*Linn. a Gmel.* Linne systema naturae. ed. 13tia, a J. F. Gmelin. Tomi 3. 1788—1793. 8vo. bound up in 9 vols. The 2nd tome in 2 vols. relating to plants is superseded by Linn. a Willd. but Tomus primus in 6 vols. is very valuable to the zoologist, and the 3rd tome to the mineralogist and geologist. The fault of this work is the want of marks to distinguish what is original. (J. F. Gmelin b. 1748 d. 1804.)

*Linn. a Link.* Linnaei species plantarum a Willd. Tom. VI continuata a Link pars I and II. 1824. 1825. 8vo.

*Linnaei* Olandska och Gothlandska resa. 1745. 8vo. In Swedish. My copy ends at p. 160, comprehending only the account of Oeland.

*Linnaei* Skanska resa. 1751. 8vo. In Swedish.

*Linnaei* Wastgota resa. 1747. 8vo. In Swedish. When will some young Swede learning our language oblige the English nation by making it acquainted with the merits of his countryman as an observing traveller. The Germans have been long in possession of a translation of all the travels of Linnaeus. Those who translate them will I hope add the remarks contained in the first 110 p. p. of Loeffl. which unhappily J. Reinh. Forster omitted to translate when he published Loefflings Latin remarks at the end of Bossus travels.

*Linn. a Pers.* Linnaei systema vegetabilium, a Persoon. 1797. 8vo.

*Linn. phil. a Spreng.* 1809. 8vo. with a new set of plates.

*Linn. a Roem. & Schult.* Linnaei systema vegetabilium a Roemer & Schultes. Tomi 6. and tomi 7<sup>mi</sup>. pars i. a Jos. and Jul. Schultes 1817—1829. 8vo. (Roemer d. 1819.)

*Linn. a Roem. & Schult. mant. in 1mum volumen.* 1822;

- in vol. 2dum* 1824; *in vol. 3tium* 1827. 8vo. It is much to be regretted that the editors have not markd those plants which they had seen. Those examin'd by Sprengel are so distinguished in the index to vol. 6th.
- L. a Schreb.* Linnaei gen. a Schreb. (Schreb. b. 1739 d. 1810.) Did this excellent observer leave no observations worthy of publication.
- Linn. a Spreng.* Linnaei systema vegetabilium a Spreng. Tomi 5. 1825—1828. It is much to be regretted that the learned editor has omitted to affix marks to those plants which he had seen living dried or figured.—Suppl. ab Ant. Sprengel. 1828. 8vo.
- Linn. veg.* Linnaei systema vegetabilium a Murr. 1774. 8vo.
- Linn. a Willd.* Linnaei species plantarum, a Willdenow. Tomi 5. 1797—1810. 8vo.
- Linn. a Willd. tomis IV index a A. Lichtenstein.* 1814. 8vo.
- Linn. a Willd. tomo Vto index.* 1821. 8vo. (b. in 1707, d. 1778.)
- Lipp.* Lipp *exposition botanica.* 1779. 8vo.
- Lois.* Loiseleur Deslongchamps flora gallica. ed. II. 1828. 8vo.
- Lour.* Flora cochinchinensis. Tomi 2. 1790. 4to.
- Louvain garden* contains a large collection of hardy plants.
- Mag. nat. hist.* Magazine of natural history. 1828. 8vo.
- Maresbrook garden* near Sheffield. On gritstone. Cultivated by Mrs. Shore.
- Martius.* Martii flora cryptogamica erlangensis. 1817. 8vo.
- Maur.* Mauri romanarum plantarum centuria XIII. 1820. 8vo.
- Mayfield garden* near Manchester, on red ground? cultivated by Leigh Philips, merchant of Manchester, who purchased Savilles plants.
- Mem. de Geneve.* Memoires de la phys. & d'hist. nat. de Geneve. Tome I. 1821. Tome II. premiere partie. 1823. 4to.
- Mile-end nursery* in Essex, in the valley of the Thames, cultivated by Gordon and afterwards by Gordon and Graeffe.

- Moench. marb.* Moench horti et agri marburgensis plantae. Tomi 2. 1794. 1802 (b. 1744, d. 1806)
- Mor. & Bob.* Hist. ox. See Bot. mat. med. i. p. xxi.
- Mor. umb.* Morison umbelliferarum distributio nova. 1672. fol. (b. 1620, d. 1683)
- Mount Pleasant garden* near Sheffield, on gritstone, cultivated by Mr. Ward.
- Muhl. cat.* Muhlenberg catalogus plantarum Americae septentrionalis. 1818. 8vo.
- Muhl. gram.* Muhlenberg descriptio graminum. 1817. 8vo. (d. in 1815)
- Neck. elem.* Necker elementa botanica. Tomi 8. 8vo. 1790 (b. 1780, d. 1793)
- Newark nursery*, cultivated by Mr. Ordoyno author of *Flora nottinghamiensis*.
- Newbold garden* near Chesterfield, on gritstone, cultivated by Mrs. M. Stovin an investigator and collector of plants.
- Nicols gardeners kalendar.* 2nd ed. 1812. 8vo.
- Nolte novitiae flore holsaticae.* 1826. 8vo.
- Norton garden* between Chesterfield and Sheffield, on gritstone, cultivated by Harriet Shore youngest daughter of — Foy of Castle hill in Dorsetshire, an investigator and collector of plants. (d. 1826)
- Nutt.* Nuttalls genera of North American plants. 2 vols. 1818. 12mo.
- The Oaks garden* in the parish of Norton in Derbyshire, near Sheffield, cultivated by Sir W. Bagshaw.
- Orford garden* near Warrington in Lancashire, cultivated by J. and Ann Blackburne and the gardener Neal. See his catalogue. Aikin who studied in it carried me to see it. See *Forst. J. and G.* 12.
- Oxford garden* cultivated by Dillenius, Humph. and J. Sibthorp and Prof. Williams.
- Pall. ross.* 8vo. Pallas flora rossica. 1789. 8vo. Tomi 2. (b. 1740, d. 1810)
- Pappe synopsis plantarum agro lipsiensi indigenarum.* 1828. 8vo.
- Park. parad.* An original work. What Dryander says of it in *Hort. kew.* ed. I. i. p. ix. is applicable to his *strum*, but not to the *paradisus*.

- Paris garden.** On some of the newest strata, cultivated by Tournesort (b. 1656, d. 1709) Vaillant (b. 1669, d. 1721) and Thouin author of numerous papers on gardening and agriculture in different collections of memoirs. (d. 1824)
- Perryhill nursery** between Birmingham and Males Owen, on gravel, formed by Brunton, cultivated by Brunton and Hunter and removed by Mr. Hunter to Soho.
- Pers. ench.** Perseon enchiridium botanicum. Tomi 2: 1805. 1807. 16mo. Is the 16th ed. of L. syst. veg. and L. a Spreng. is the 17th.
- Pers. syn.** Perseon synopsis fungorum. 1801. 12mo.
- Peyr.** Peyrilhe tableau methodique d'histoire naturelle medicale. 8vo.
- Pollin.** Pollinii flora veronensis. Tomi 8: 1822. 1822. 1824. 8vo.
- Pont.** Pontederaceae anthologia. 1720. 4to.
- Presl. cyp.** Presl cyperaceae et gramineae siculae. 1820. 8vo.
- Presl. fl. sicula.** 1826. 8vo.
- Pursh.** Flora americana septentrionalis by Fred. Pursh. 2 vols. 1814. 8vo. (d. 1820)
- Purt.** Purtons midland flora. 8 vols. 1817. 1821. 12mo.
- Raf.** Rafinesque florula ludoviciana. 1817. 12mo.
- Raeuschel** nomenclator botanicus. 1797. 8vo. Superseded by Steudel.
- Reb. ber.** Rebentisch index plantarum circa Berolinum. 1805. 8vo.
- Reb. neomarch.** Rebentisch prodromus florae neomarchicae. 1804. 8vo.
- Reichenb. pharm.** Reichenbach flora lipsiensis pharmaceutica. 1818. 8vo.
- Rempston garden** in Nottinghamshire near Loughborough, on blue lias, cultivated by Dowager Lady Sitwell.
- Renishaw garden** near Eekington in Derbyshire, on gritstone, cultivated by Dowager Lady Sitwell and afterwards by Sir G. Sitwell.
- Richard, A.** elements de botanique. 1825. 8vo.
- Richard, L.** du fruit. 1808. 12mo. (b. 1754, d. 1821)
- Richard by Lindl.** Richard, L. analyse du fruit translated by Lindley. 1819. 8vo.

- Riddgreen garden** on stratified red clay, cultivated by J. and his daughter Penelope Stokes florists.
- Robinsons street garden** on the E. side of Malvern Chace at the eastern foot of Malvern hill, on the rubbish of Malvern hill, cultivated by R. Ballard surgeon, whose herbarium is in the possession of Mr. Rufford of Badsey.
- Robson, E.** son of Steph. Robson author of British flora, of Darlington in Durham. See Bot. arr. ed. IV. i. p. xiv.
- Rostk. & Schmidt** flora sedinensis. 1824. 8vo.
- Roth. catalect.** Roth catalecta botanica. Tomi 3. 1797. 1806. 8vo.
- Roth. enum.** Roth enumeratio plantarum phaenogamarum Germaniae. Tom. Ius 1827. 8vo.
- Roth. sp.** Roth novae plantarum species. 1821. 8vo.
- Rottb.** Rottboll descriptiones et icones plantarum. ed. 2nda 1786. t. t. 21. fol. (b. in 1727, d. 1787)
- Roxb. corom.** Roxburghs plants of Coromandel. 2 vols. 1795. fol.
- Roxb. ind.** Roxburgh flora indica. 2 vols. 1820. 1824. 8vo. (d. in Britain.)
- Salt,** cutler of Sheffield, a very accurate investigator of plants and insects, whose herbarium and cabinet form a part of the Sheffield museum.
- Sansom fields garden** in Worcester, on siliceous sand and gravel; cultivated by Johathan Stokes florist, and his son.
- Sauv.** Sauvages methodus foliorum seu plantae florae monspeliensis. 1751. 12mo. As good a botanist as physician.
- Scheide** de plantis hybridis sponte natis. 1825. 8vo.
- Scheuch. J. Jac. it.** 1708. 4to.
- Schlecht. ber.** Schlechtendal flora berolinensis. Tomi 2. 1823. 1824. 12mo.
- Schleich.** Schleicher catalogus plantarum Helvetiae. 1821. 8vo.
- Schoenbrun garden** at a palace of the Emperor of Austria within a walk of Vienna, cultivated by the gardener Schott who gives name to a genus, contains the largest exotics I ever beheld.
- Schrad. asperif.** Schrader de asperifolia. 1820. 4to.

- Schrad. germ.** Schraderi flora germanica. Tom. I. 1806. 8vo.
- Schrad. spicil.** Schraderi spicilegium florae germanicae. 1794. 8vo.
- Schrad. verb.** Schraderi verbascum, sectio 1. and 2. 1813. 1823. 4to.
- Schrad. ver.** Schraderi veronicae spicatae. 1803. 8vo.
- Schult. obs.** Schultes observationes in Linn. sp. a Willd. 1809. 8vo.
- Schultz** flora stargardiensis. 1806. 8vo.
- Schum.** Schumacheri plantae saclandiae. Tomi 2. 1801. 1803. 12mo.
- Schweig. & Koerte** flora erlangensis. 1811. 12mo. (Schweigger d. 1821)
- Sheffield nursery** in the parish of Norton in Derbyshire, north of Sheffield, on gritstone and peat, cultivated by Messrs. Oldham.
- Sherards herbarium** enriched by Dillenius and given by J. Sibthorp to the Oxford physic garden, I consulted for one genus but was greatly disappointed to find that the collectors had in no instance that I observd noted whence the specimens were obtained, in which respect the Linnaean herbarium also is very deficient.
- Short medicina britannica.** 1746. 8vo.
- Sibth. prodr.** Sibthorp florae graecae prodromus. Tomi 2. 1806—1813. 8vo. (d. 1798)
- Smith. comp.** Smith compendium florae britannicae. 1816. 12mo.
- Smiths gram.** Smiths grammar of botany. 1826. 8vo.
- Smiths intr.** Smiths introduction to botany. 1807. 8vo.  
A work highly useful to those who are possessed of Engl. bot.
- Soho garden** N. of Birmingham on siliceous sand and gravel, cultivated by Boulton partner of Watt in the manufacture of Watts improved steam engine. Hither resorted on the Sunday nearest the full moon Jas. Watt engineer and fellow labourer with Black on latent heat, and who as well as Mrs. W. collected plants in Cornwall, Jas. Kier translator of Macquers chemical dictionary, Erasmus Darwin author of Zoonomia (a work which would be oftener consulted if it had an index to vols. and p.p.) and Phytologia, and who is



conjunction with Boothby author of fables and Jackson the printer of the work, planned and published a translation of *Linnaeuss* gen. plant. and syst. veg. in 8 vols. 8vo. and W. Withering who in conjunction with Sneyd of Belmont and Turton of Stafford planned, and which he afterwards executed, the first version, revised by me, of *Linnaeuss* generic descriptions and specific characters of British plants under the title of a botanical arrangement. On Priestleys accepting the office of pastor of the Presbyterian congregation in New meeting street in Birmingham the Lunar society changed its day of meeting to Monday, the members dining in rotation at each others houses, and continuing to do so til the Birmingham riots drove Priestley to Northumberland in the United States.

*Soho nursery* N. of Birmingham, and to the E. of Soho garden, on gravel and peat. Removed by Mr. Hunter from Perryhill. The site is now built upon.

*Sol.* Solander whose observations enriched the first edit. of *Hort. kew.* with specific characters and descriptions, left in manuscript descriptions of the plants found in the voyage with Cook round the world; and others cultivated in Kew Chelsea Upton and Islington gardens, whose specific characters are given in *Hort. kew.* a work which perhaps ought rather to have been titled *Hort. londinensis.* (b. 1786 d. 1786)

*Sommerf.* Sommerfelt supplementum florae lapponicar. 1826. 8vo.

*Spenn.* Spenneri flora feiburgensis. Tomi 3. 1825--1829. 12mo.

*Spreng. crypt.* Sprengels introduction to the study of cryptogamous plants. 1807. 8vo. A useful appendage to every introduction to botany.

*Spreng. hal.* Sprengeli flora halensis. 1806. 12mo. *mant.* I. 1807. 12mo; *mant.* II. 1811. 12mo.

*Spreng. provent.* Sprengeli novi proventus herborum. 1818. 16mo.

*Spreng. pug.* Sprengeli plantarum pugillus I. II. 1818. 1815. 16mo.

*Spreng. prodr.* Sprengeli plantarum umbelliferarum prodr. 1813. 8vo.

*Staveley garden* cultivated by Mr. and Mrs. Foxhwa.

- Stend.* Stendel nomenclator botanica. Tomi 2. 1821.  
1824. 8vo. A most valuable appendage to Linn. & Willd.  
If the references had been made to vols. and pages  
Lichtensteins index would not have been wanted.
- Stend. & Hochst.* enumeratio plantarum germaniae hel-  
veticaeque. 1826. 8vo.
- Stromeyer* historia vegetabilium geographiae. 1800. 4to.
- Succ.* Suecov flora mannheimensis. Tomi 2. 1822. 12mo.
- Summers* compendium of botany. Hartford in the United  
States. 1820. 12mo.
- Sut. helv.* Suteri flora helvetica a Hagetschweiler. Tomi  
2. 1822. 16mo. A most useful book to those who travel  
in Switzerland. (d. in 1827).
- Swartz. filio.* Swartz synopsis filicum. 1806. 8vo. (b. in  
1760, d. in 1817)
- Swartz. ic.* Swartz icones plantarum Indiae occidentalis.  
t. 1—13. 1794. fol.
- Swartz. musc.* Swartz musci frondosi sueciae. 1760. 16mo.  
(b. in 1760, d. in 1817)
- Sweet. lond.* Hortus suburbanus londinensis. 1818. 8vo.  
superseded by the following.
- Sweet. brit.* Hortus britannicus. 1827. 8vo.
- Symons* synopsis plantarum insulis britannicis indigena-  
rum. 1798. 12mo.
- Tipton garden* near Chesterfield on gritstone, cultivated  
by Mr. Wilkinson.
- Taylor, O. surgeon.* in the navy, son of J. and Eliz. of  
Stanton in the parish of Youlgrave in Derbyshire, born  
in 1762, was appointed in 1791 surgeon mineralogist  
and botanist to the Sierra Leone company, but returning  
in 1792, was taken prisoner in the Alert and sent to  
Quimper and in 1796 shipwrecked in the Amazon on the  
French coast and detained prisoner at Verdun, where  
he collected the specimens to which his name is sub-  
joined. He was appointed to the Naïd and arrived in  
port accompanied by La Brigada and Thetis register  
ship laden with dollars, when quitting the service he  
devoted himself to botany and mineralogy, dying in  
London 28 Nov. 1818 aged 56, leaving a son Adolphus  
by his first wife and his second wife a widow without  
issue.

- Thomps. J. V.** Thompsons catalogue of plants near Berwick. 1807. 8vo.
- Thuill.** Thuillier flore des environs de Paris. 1799. 8vo.  
A practical work, but the synonyms seem to be copied from Lightf. (d. in 1822)
- Thunb. cap.** Tomi 2. 1818. 1820. 12mo; ed. II. 1823. 8vo.
- Thunb. prodr.** plantarum capensium. Pars. I. 1794. 8vo. (just deceased.)
- Towns.** Townsons travels in Hungary. 1797. 4to. Nativ of Shropshire. Accompanying a brother who went in an official situation he died a wealthy planter in Australia. His heirs will I hope give us the observations he must have made on every branch of natural history.
- Torr. &c.** Catalogue of plants growing spontaneously within 30 miles of New York, by Torrey Eddy and D'Jurco V. Knevels. 1819. 8vo.
- Tratt. rosac.** Trattinnick rosacearum monographia. Vol. 3. 1823. 12mo.
- Trentham garden,** on sand and gravel in the valley of the Trent, cultivated by the rector T. Butt is a very extensive collection of hardy plants.
- Trianon garden** in the neighbourhood of Paris, cultivated by Richard.
- Trin. fund.** Trinius fundamenta agrostographiae. 1820. 8vo.
- Trin. unifl.** Trinius de graminibus unifloris and sesquifloris. 1824. 8vo.
- Turn. & Dillw.** Turner and Dillwyns botanists guide through England and Wales. 2 vols. 1805. 12mo.
- Upton garden** in Essex between Stratford and Ilford, in the valley of the Thames, cultivated by Fothergill the physician, who engaged Miss Lee and professd artists to make colourd drawings of the rarer plants. In conjunction with Pitcairn and Banks he sent out persons to collect plants in the Alps.
- Vahl.** (b. 1749 d. 1804) cut off in the commencement of his species plantarum. When may we hope to see a 3rd vol. of the enumeratio, with marks distinguishing the observations of Vahl and those of his editors.
- Van Hall** synopsis graminum indigenarum. 1821. 8vo.

- Vauch. orobanches.* Vaucher orobanches. 1827. 4to. In French.
- Vienna garden* in the valley of the Danube, cultivated by Jacquin and the gardener Koller, perhaps a son or grandson of Kolaart praised by Boerh. i. p. 38 of the prolegomena, and whose eldest daughter is an investigator and collector of plants.
- Wahl. carp.* Wahlenberg flora carpatorum. 1814. 8vo.
- Wahl. helv.* Wahlenberg de vegetatione Helvetiae. 1813. 8vo.
- Wahl. lapp.* Wahlenberg flora lapponica. 1812. 8vo.
- Wahl. suec.* Wahlenberg flora suecica. Tomi 2. 1824. 1826. 8vo.
- Wahl. ups.* Wahlenberg flora upsaliensis. 1820. 8vo.
- Wallr. ann.* Wallroth annus botanicus. 1815. 12mo.
- Wallr. orobanche.* Wallroth de Orobanche. 1825. 8vo.
- Wallr. ros.* Wallroth rosae historia. 1828. 8vo.
- Walkr. sched.* Wallroth schedulae criticae. Tom. I. 1822. 12mo.
- Westons* universal botanist and nurseryman. 4 vols. 2nd edit. 1777. 8vo.
- Whitburn garden* on the sea shore of Durham between the Tyne and Wear, cultivated by the rector Mr. Baker.
- Wib.* Wibel flora werthemensis. 1790. 8vo.
- Willd. achill.* Willdenow de Achilleis. 1789. 8vo.
- Willd. amaranth.* Willdenow historia amaranthorum. 1798. fol.
- Willd. bot.* Willdenows principles of botany. 1805. 8vo.
- A book which should be in the hands of every student. The translators note at p. 464 stands in need of correction. In a future edition the translator will I hope give us t. 10 in colours more accordant with nature. Whatever the original may be that in the translation can only mislead. Surely some of our artists are competent to supply this deficiency. Those who may attempt it will do well to read what M. de Candolle has written on the subject in his *theor.* 520—526, and naturalists may note down the animals and plants whose colours Linnaeus has described, and discriminate the shades of brunneus badius fulvus ferrugineus in bay horses red cows red deer fawns dormice foxes, wolves according to Decandolle and fulvous lions.

*Willd. enum.* Willdenow enumeratio horti berolinensis. Tomi 2. 1809. 8vo.

*Willd. suppl.* Willdenow enum. horti berol. supplementum. 1813. 8vo. The best of the Linnaean editors, and the first who distinguished by marks the plants which he had seen living and dried. (b. 1765, d. 1812)

*Williams, Mr. J.* minister of the presbyterian church in Mansfield.

*Wilson's nursery near Sheffield* in the valley of the Dun, on gritstone, contained a very extensive collection of hardy plants, dispersed on the death of the cultivator.

*Wimm. & Grab.* Wimmer and Grabouski flora Silesiae pars I. 1827. 12mo.

*Winch &c.* The botanists guide through Northumberland and Durham by Winch Thornhill and Waugh. 2 vols. 1805. 8vo.

*Winch, cumberl.* Winch on the Cumberland flora. (subsequent to 1825) 8vo.

*Winch, geogr.* Winch's geography of plants ed. I. 1819; ed. II. 1825. 8vo.

*Wingworth garden* on gritstone near Chesterfield cultivated by the late Sir H. and Lady Hunloke.

*Wright, W. M. D.* memoir of, with a selection of his papers on medical and botanical subjects. 1828. 8vo. with an engraved portrait, which is a striking likeness. It is published by his three nieces as a memorial of their affection. (b. 1735, d. 1819)

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#### OMITTED.

*Boraston, Mr. Gregory,* clergyman in the diocese of Worcester, collected plants in Italy and Gibraltar.

*Bulletin des sciences naturelles* sous la direction de M. le baron de Ferussac. 8vo. published monthly. No periodical work which has fallen in my way gives a regular abridgment of the contents of the transactions of the literary societies of Europe.

*Clus. cur. post.* Clusii curae posteriores. 1611. 4to.

*Sadl.* Sadler flora pestiensis. Tomi 2. 1825. 1826. 8vo.

*Schrad. blum.* Schrader blumenbachia. 1827. 4to.

*Seb. & Maur.* Sebastiani & Mauri flora romana. 1818. 8vo.

**TRANSLATION OF THE GERMAN PREFACE  
TO THE SUPPLEMENT  
TO WILLDENOWS ENUMERATIO.**

The *Enumeratio plantarum* published by the never to be forgotten Willdenow, contains a list of the plants growing in the Botanic garden in the summer of 1808, amounting to 6351, a number which must appear astonishing to those who are acquainted with the earlier condition of the garden and the difficulties attendant on the acquisition of so large a collection. When Willdenow in the summer of 1801 undertook the charge of this establishment, the garden contained not more than 1200 species indigenous and culinary vegetables inclusive. Every thing was wanted requisit for the culture of foreign plants, there not being a single stove to shelter the natives of tropical climates. In a short time every thing was procured. Willdenows zeal for science and indefatigable activity overcoming all difficulties the garden was soon brought into full culture. Stoves were built to receive the plants of different climates and communications opened with nurserymen botanists and distinguished travellers, and no means left unemployd to bring together living plants from all parts of the globe. A careful employment of the various modes of culture enabled him to keep up an active exchange with other horticultural establishments, the garden soon containing within itself an inexhaustible spring capable of increasing its riches at an inconsiderable expence, obtaining plants which otherwise must have been procured from nurserymen at very high prices, and which before had not been seen in gardens, and completing the series of many remarkable genera, such as *Mesembryanthus* *Stapelia* *Narcissus* *Aster* &c. Nothing enables us to display the specific differences of plants, the true foundation of botany, so much as the opportunity of comparing a number of living

species, whence arose the new view of the genus *Aloe* given in the *Mag. der Ges. natf. Fr. V Jahrg. p. 163*, and afterwards the character of the genus *Cactus*.

In a journey through Germany Italy France Holland the Swiss Alps and the sea coasts of Europe he took every opportunity of transmitting to the botanic garden all the rare and undescribed plants which occurred, encouraging all his friends to similar exertions. His rich herbarium supplied him with many seeds which afforded plants the produce of remote countries visited by travellers perhaps only once in a century, and he was particularly fortunate in his trials with the seeds of *Filices* in which his herbarium was peculiarly rich. See his treatise on the germination of ferns in the *Mag. des Ges. natf. Fr. II Jahrg. p. 290*. The seeds of ferns found in herbariums have been seldom made to germinate, and the difficulty of raising plants from them is much increased by cryptogamous weeds which make their appearance in the pots, such as mosses *Marchantias* and young plants of ferns either wild or growing in the garden. In this way were obtained several remarkable vegetable forms which had never been seen in gardens.

The interruption which the culture of the plants suffered from the neglect of the former gardener was amply compensated by the conduct of the present M. Otto, a young man full of zeal for botany and horticulture and who seems to live only for the preservation and increase of the treasures committed to his care, animated by a desire to anticipate the wishes of one who was not only his director but instructor and parental friend. May the successor of Willdenow follow his example in cherishing this excellent man.

Immediately after the publication of the enumeration another calamity befell the garden. I was in it with my friend Willdenow when it happened. In the report which he gave in to the academy of sciences in 1809 he relates the circumstance.

“On the 2nd of June during very hot suffocating weather a hailstorm arose from the west about 4 in the afternoon. The cloud separated, one part passing over Berlin in a southeasterly direction, the other in a

northwesterly direction over the park and Moabit. The hailstones were pearshaped of the size of small walnuts. I was myself an eyewitness of the devastation caused by these masses of ice. A few moments previous every thing in the garden was in full beauty, most of the shrubs being in flower, and soon after all the herbaceous plants were laid flat on the ground, and the walks strewn with leaves and broken branches of trees. The glass of the stoves was shattered into a thousand pieces, which tore the branches of the tender tropical plants destroying what had escaped the hail. The ground covered with hailstones and white as in winter, being warmed by the heat of the day, smoked like a furnace, so that in a few moments this scene of destruction was enveloped in a thick cloud, the site only remaining, every thing else having become a prey to the storm. Several of the labourers were hurt."

But this loss was soon replaced, his majesty supplying funds for the repair of the glass, and warm weather setting in prevented the more tender plants from farther injury though they were some days uncovered, and many shrubs which seemed utterly destroyed put out healthy shoots, flowering for the most part a second time.

Besides the progressive increase of the number of plants, the garden was improved from year to year in its internal regulations, stoves being erected on a new construction, a separat inclosure formed for hardy shrubs and trees, each perennial plant set in an appropriate plot, due regard being paid to its situation, and every plant marked with its systematic name burnt in porcelain. In consequence of these and other excellent regulations the garden began to enter into competition with the most celebrated with respect to the number of species, apparently approaching to perfection, when on the 10th of July it became as it were an orphan, by the death of its director.

Willdenow in the preceding winter had made preparations for publishing a supplementary volume, for which purpose he subjected the garden to a careful revision marking those plants which had been lately introduced, and in the spring he employed himself in



a more accurate examination of the new species. According to the last catalogue the garden had received an increase of 1350 species. I felt it therefore a duty to collect every thing amongst his papers relating to the subject, and to communicate to the lovers of botany the following specific characters and descriptions, the last labours of the excellent man whom death hath taken from us.

Berlin, Nov. 1812. Von Schlechtendal. (the father.)

100



## Class 1.

## MONANDRIA.

## Order 1.

## MONOGYNIA.

## 1. CANNA.

*Capsula* trilocularis, loculis polyspermis. *Calyx* superus triphyllus. *Corolla* limbo duplici, antherifera. — *Capsule* trilocular; cells polyspermous. *Calyx* superior triphyllous. *Corolla* with a double limb. *Anthera* inserted into the corolla. *Obs.* 9296. 2997. *Gaertn.* i. 37. *t.* 12. *Roxb. ind.* i. 1; *in asiat. res.* xi. 321. 322. *Willd. enum.* i. 1. *Rosc. in lin. tr.* viii. 338. *t.* 20. *f.* 1. *Linn. a Roem. & Schult.* i. 1. 555; *mant. I. add. II.* 77. *L.*

1. *CANNA ellipticifolia*. Folia elliptica. Corolla septempartita octopartitaque.—Leaves elliptic. Corolla septempartite and octopartite. *Obs.* 2721. In Soho nursery.—*Obs.* 12302. 12323. In Darley garden. May and June.—*Obs.* 9296. A plant raised from seed produced by a plant cultivated in a greenhouse.—*Bot. mat. med.* i. 2.

*C. indica*. *Thunb. jap.* 14. *Roxb. ind.* i. 1; *in asiat. res.* xi. 322. *Sul. R. hort.* 4. *Clus. hist.* ii. 81, *repr. in*

*Arundo florida*. *Ger. by Johns.* 39, *and cop. in*

*C. sive Arundo indica*. *Bauh. J.* ii. 752.

*Cannacorus ovatus*. *Moench. marb.* i. 526.

*a rubra*. Phylla ensate. *Obs.* 12323.

*C. ellipticifolia*. *Bot. mat. med.* i. 2a

*C. indica*. *Linn. a Willd.* i. 3. a; *a Roem. & Schult.* i. 11. *Hort. kew. ed. I.* i. 1 a; *ed. II.* i. 1. *Rosc. in lin. tr.* viii. 338.

*C. variabilis.* Willd. enum. i. 1. Link. enum. i. 1. Linn. a Spreng. i. 7.

*Calyx* reddish purple,  $2\frac{1}{2}$  as long as the germen; phylla canaliculate, incumbent, the 2 outer somewhat longer. *Corolla* septempartite; segments entire at the end, incumbent from right to left; outer limb with 3 segments, purplish red; segments ensate, canaliculate, erect, nearly equal, the shorter twice as long as the calyx; inner limb bilabiate, longer than the outer, with 4 segments; segments entire; 2 outer segments forming the upper lip, vermilion coloured, lanceolate, the outer segment falcato-lanceolate, somewhat longer and broader; the 3rd revolute, forming the lower lip, saffron coloured streakt with scarlet, canaliculate below, ensato-linear above, somewhat shorter than the 2 last; innermost segment opposit to similar to and as long as the revolute segment, suberect. *Anthera* inserted into the right hand margin of the innermost segment of the corolla.

β *coccinea.* Phylla ovali-ovate and oblongo-lanceolate.

*Corolla* octopartite; inner segments emarginate.

*Obs.* 9296.

*C. ellipticifolia.* Bot. mat. med. i. 2 γ

*C. indica.* Hort. kew. ed. I. i. 1 γ Gaertn. i. 37. t. 12.

*C. rubra.* Willd. enum. i. 1.

*C. coccinea.* Rosc. in lin. tr. viii. 338. Hort. kew. ed. II. i. 1.

*Stem* comprest, solid. *Leaves* bifarious, setaceous at the end; margin with a membranaceous border; petioles vaginant. *Calyx*, phylla unequal. *Corolla*, outer limb trilaciniate; segments nearly equal, ensate, canaliculate, patulous; inner limb quinquelaciniate, bilabiate; upper lip formd by the 3 outer and longer segments; lower lip by the 4th segment; lowermost segment inserted a little above the outer limb, nearly twice as long as the outer limb, lanceolate above, linear below, 2 inches long, reddish scarlet on the inner surface, yellowish at the base, reddish scarlet on the outer surface above in the middle and sides, tawny yellow in the middle, tawny at the base; intermediate segment lanceolate above, linear below,

1 inch 7-10ths long, reddish scarlet on the upper surface, yellowish at the margin below and at the base, reddish scarlet on the lower surface above, tawny yellow below; lowermost segment but 2 lanceolate, 1 inch 8-10ths long, reddish scarlet on the upper surface, tawny at the base, reddish scarlet on the under surface above, tawny yellow below; 4th segment revolute, forming the lower lip of the inner limb, 1 inch 8-10ths long, lanceolate, semivaginant lineate and tawny below, linear slightly attenuate and yellow with short longitudinal lines above; 5th segment linear, yellow and reflex above with short red lines, in the middle and at the base tawny with short red lines. *Filament* forming the left hand margin of the 5th segment. *Anthera* oblong, erect. *Pollen* globose, white, scabrous, unaltered by water. *Style* linear, fleshy, not withering with the corolla, 1 inch 7-10ths long, broader above, slightly attenuate towards the end, multinervose, yellow, reddish rufous and shining at the end; surface of the end reticular; areolae vermilion-coloured, opaque, oblong. *Stigma* obtuse, glutinous, whitish. *Seeds* much resembling those of *Corypha* minor, globose, very hard, difficultly cut with a penknife, black, slightly shining, dotted with dots at equal distances. *Tunic* hard, coriaceous-membranaceous, opaque, elastic, after steeping separating from the indusium, composed of vertical cylinders; cylindric masses of an olive whitish hue, semitransparent, shining, filiform, angular. *Indusium* fuscous black, when steeped rufous, dull. *Hilum* subrotundo-ovate, brownish white with a rufous border. *Perisperm* straw-coloured white, ligneous, very tough, cut by a penknife with difficulty, enclosing the whole of the diasperm excepting the end, very opaque, the thinnest sections scarcely admitting light through them, but when long steeped appearing fibrous, the fibres columnar, radiating from the center to the circumference, slightly curved. *Diasperm* clavate, glabrous, straw-coloured, truncate at the base, with a circular horizontal ridge a little above the base, the end obliquely rounded, slightly gibbous on one side, granular, enveloped by a

transparent membrane which is studded with semi-opaque dots; the base close to the hilum, the end half way between the center of the perisperm and the chalaza; granules middlesized. *Corculum* minute, straw-coloured, ovate and transversely semioval, the base inserted into the base of the diasperm, the parts above lying in a smooth cavity of the diasperm even with the circular ridge, fleshy, granular; granules minute. The structure of the seed is similar to that of the gramina. Corolla stamen and style monadelphous.

*inaequalis*. (Variation.) 2nd segment of the inner limb shorter than the adjoining segments. *Obs.* 12302.

*Leaves* elliptic, setaceous at the end. *Racemi* spicate above. *Flowers* in pairs and solitary, not fully expanded. *Bracteae*, the lower lanceolate, the upper cuculate-ovate. *Calyx* triphyllous, permanent; phylla oval, at length lanceolate, unequal, obtuse and acute, incumbent, membranaceous at the margin. *Corolla* deciduous; outer limb trilacinate; segments linearilanceolate, unequal, 5 times as long as the calyx, incumbent; inner limb quinquelacinate; segments lanceolato-oblong, yellow below, red above, incumbent; the outermost the largest; the 2nd smaller; the 3rd linearilanceolate, longer than the 2nd, yellow with red spots below, red above; the 4th yellow with red spots, red at the end; the 5th yellow with red spots. *Anthera* linear, bilocular, inserted into the outer margin of the 8th segment of the corolla. *Pollen* globose, subscabrous, thrice as large as that of *Primula veris* Polyanthus. *Style* lanceolato-oblong, flat.

2. *CANNA glauca*. Lacinae limbi interioris corollae spatulatae; intimae angustiores.—Segments of the inner limb of the corolla spatulate; inner segments narrower. *Obs.* 2997. In Spring grove garden in Worcestershire.—*Linn. sp.* i. 1; *a Willd.* i. 4; *a Roem. & Schult.* i. 13. 557; *a Spreng.* i. 13. *Willd. enum.* i. 3. *Rosc. in lin. tr.* viii. 339. *Link. enum.* i. 2. *Hort. kew. ed. I.* i. 2; *ed. II.* i. 2. *Sal. R. hort.* 4. *Smith. exot.* ii. 83. t. 102.

(*Cannacorus Dill. hort.* 69. t. 59. f. 69, is *C. flaccida*.)

Glaucous. *Leaves* lanceolato-elliptic, nervose, slightly and longitudinally canaliculate on the upper surface, carinate underneath; the channels about 10, parallel neither to the costa nor to the ribs; veins patulous, extending to the margin. *Flowers* scentless. *Calyx* triphyllous, inserted into the margin of the germen; phylla erect, nearly equal, lanceolate and ovato-lanceolate, carinate, membranaceous at the margin, embracing the base of the corolla. *Corolla* deciduous multipartite; outer limb of a calycine texture, pale yellow before flowering, 4 times as long as the calyx, lanceolate, erect, concave, almost tubular from the rolling in of the margins, adhering at the base to the solid tube formed by the union of the segments of the inner limb, the margins by their inside being distinct to the very base; inner limb quinquepartite, assuming the appearance of an obliquely bilabiate corolla, the upper lip being formed of the 3 upper segments and the lower lip by the lowermost segment; segments unequal, of a golden yellow before flowering, after flowering strawcoloured, the 3 upper nearly equal, spatulate, erose at the end, the 1st or outermost on the right, with its edges lapping over the lowermost and the middlemost of the 3 upper, the 2nd the shortest of the upper 3, lapping over the 3rd, the 3rd somewhat longer lapping over the 4th; the 4th recurvate, carinate, linear, emarginate, thrice as narrow as the 3 upper, just shorter than the longest of the upper 3; the 5th opposit to the 4th, lapping over the style, shorter than the middlemost of the upper 3. *Anthera* sessile, adhering by half its length to the inner margin of the 5th petal. *Style* linear, shining, of the same colour as the corolla, just shorter than the 5th petal, convex on the inner side, canaliculate above on the outer side.

## 2. MARANTA.

*Capsula* trilocularis. *Calyx* superus, triphyllus tripartitusque. *Corolla* limbo triplici. *Anthera* corollae limbo intimo inserta.—*Capsule* trilocular. *Calyx* superior, triphyllous and tripartite. *Corolla* with a



triple limb. *Anthera* inserted into a segment of the innermost limb of the corolla. *Obs.* 12313. 12387. The account of the capsule from *Rosc. in lin. tr.* viii. 339. *t.* 20. *f.* 2, & *Linn. a Spreng.* i. 1. *L.*

1. *MARANTA zebrina*. Acaulis. Folia oblonga. Spica compacta. Bractene orbiculares multiflorae.—Stemless. Leaves oblong. Spike compact. Bracteae orbicular, multiflorous. *Obs.* 12313. A leaf and flowers from Renishaw garden. May and June.—*Linn. a Spreng.* i. 8. *Sweet. lond.* 1. *Link. enum.* i. 2.

*Leaves* elliptico-oblong and oval; lamina 20 inches long, 8 broad; face apparently pubescent, with alternat oblique stripes of light and dark green; lateral veins numerous, patent, parallel; back purplish. *Petiole* comprest. *Calyx* purple; phylla oblongo-lanceolate, canaliculate. *Corolla* purple; decempartite, with 3 limbs, 1 inch 7 tenths long; segments incumbent, those of the outer limb spatulato-lanceolate, canaliculate, equal, an inch long, somewhat longer than the calyx; those of the 2nd limb oblongo-lanceolate, blackish purple, shorter, equal; those of the 3rd limb unequal, the outermost segment spatulate, canaliculate below, whitish, with 2 longitudinal ridges with an oblong purple lamina, the next segment opposit to the outermost, somewhat smaller, whitish tinged with purple; the third irregularly lobate and incurvate at the end, whitish; the 4th incurvate, very narrow whitish bearing the anthera. *Anthera* oblong, unilocular, white. *Style* clavate, brownish black, subgeniculate and decurvate at the end. *Stigma* oval, concave, oblique; margin whitish.

2. *MARANTA bicolor*. Folia subrotundo-cordata discoloria, dorso pubescentia.—Leaves subrotundo-cordate; back pubescent, of a different colour from the face. *Obs.* 12387. Leaf and flowers from Heringhay garden. 18 Aug.—*Bot. cab. t.* 921. *Donn. by Lindl.* 3.

*Leaf* cuspidate, 5 inches long, in drying curling up laterally inwards; face nitid, with a whitish glaucous pinnatifid area in the middle, borderd on each side by a line of five blackish green blotches; back purple;

costa bordered by a line of adpressed hairs; lateral veins pubescentulous. *Petiole* short, pubescent on the face. *Stipulae* triangular, at the base of the petiole. *Racemus* compound, pubescent; fasciculi alternat. *Bracteae* lanceolate, an inch long. *Flowers* shorter than the bracteae of the fasciculi. *Germen* cylindric, sericeous, fawn-coloured white; hairs extending beyond the end. *Calyx* superior, triphyllous; phylla subovato-lanceolate, membranaceous, nervose; two tenths of an inch long; ribs 7 and 8 with some transverse veins. *Corolla* twice as long as the calyx; segments 8, 3 outer lanceolate, very thin, 5 inner of various shapes, thicker, as long as the 3 outer; the 4th beginning on the right hand cuneate, twice as broad as the 3 inner; the 5th cuneato-obovate, longer and broader, one fourth longer than the 3 outer; the 6th obovate, shorter than the 4th, bilobate; the 7th cuneate, trilobate, shorter than the 6th; the 8th lineari-lanceolate, antheriferous, the narrowest and shortest, inserted at the commissure of the 4th and 5th. *Anthera* lanceolate, inserted into the margin of the 8th segment of the corolla. *Pollen* white, globose. *Style* linear, cultrate, as long as the antheriferous segment of the corolla, straight and incurvate at the end. *Stigma* lateral, vertical, calycine, quadrifid; segments triangular, unequal. Closely allied to *M. zebrina*.

### 3. HEDYCHIUM.

*Capsula* trilocularis, loculis polyspermis. *Calyx* superus trifidus. *Corolla* sexpartita, lacinia latiore biloba. — *Capsule* trilocular; cells polyspermous. *Calyx* superior, trifid. *Corolla* sexpartite; the broader segment bilobate. *Obs.* 12463. The account of the capsule from *Roxb. ind.* i. 9. *Bot. mat. med.* i. 76. *Koen. ap. Retz. obs.* iii. 48. *Linn. a Willd.* i. 10; *a Roem. & Schult.* i. 2; *a Spreng.* i. 1.

1. *HEDYCHIUM angustifolium*. Folia lineari-lanceolata, glabra. Bracteae patulae. Flores subterni. Corollae laciniae 5 angustiores lineares, sexta obcordata lobis semiovalibus. — Leaves lineari-lanceolate glabrous. Bracteae patulous. Flowers mostly in threes.

The 5 narrower segments of the corolla linear, the 6th obcordate with semioval lobes. *Obs.* 12463. Specimen in Mrs. M. Stovin's herbarium, gathered in Rempston garden in Aug. The account of the position of the bracteae and number of flowers from *Roxb. ind.* i. 11. 82. note.—*Linn. a Roem. & Schult.* i. *mant.* 15; ii. *mant.* 71; *a Spreng.* i. 9. *Bot. reg. t.* 157. Flowers described as vermilion but coloured tawny orange. Leaves represented as marginate.

*Leaves* underneath with microscopic scales; scales orbicular. *Petioles* auriculate at the end. *Spike* oblong, leafy at the base, 6 inches long. *Bracteae* oblong, membranaceous at the margin, hirsute at the very end, the lowermost acute. *Corolla* straw-coloured. *Stamen* nearly twice as long as the corolla. *Anthera* sagittate, bilocular, curvd. *Style* capillary. *Stigma* clavate, prominent.

#### 4. LOPEZIA.

*Calyx* superior, tetraphyllous. *Petals* 5, unequal. *Capsule* quadrilocular; cells polyspermous. *From Linn. a Willd.* i. 18; *a Roem. & Schult.* i. 4; *a Spreng.* i. 4.

1. *LOPEZIA coronata*. Pedunculi axillares.—Peduncles axillary. *Obs.* 12030. Specimen gathered by Mrs. M. Stovin, in Southampton nursery.—*Link. enum.* i. 4. *Hort. kew. ed. II.* i. 10. *Linn. a Roem. & Schult.* i. 34; *a Spreng.* i. 16. *Willd. suppl.* 1. *L. mexicana.*  $\beta$  *Dec. monsp.* 39.

Glabrous. *Leaves* denticulate, rhombo-elliptic, sparse, petiolate; floral leaves ovate, twice as broad as those below them. *Peduncles* solitary, filiform, as long as and longer than the petioles. *Capsules* unripe obovate and oval.

#### 5. HIPPURIS.

*Calyx* superus. *Corolla stylus* que nulli. *Stigma* attenuatum. *Semen* 1.—*Calyx* superior. *Corolla* and *style* none. *Stigma* attenuate. *Seed* 1. *Obs.* 9472. *Wahl. ups.* 1. *Poll.* i. 1. *Gaertn.* ii. 24. t. 84. *Lam. & Dec.* iv. 415. *L.*

1. **HIPPURIS vulgaris.** Folia emersa subulata.—The leaves growing in air subulate. *Obs.* 8066. Drawn up by a fishing line from the bottom of the pool at Nether Langwith in Nottinghamshire. 10 May.—*Obs.* 9472. In Nether Langwith pool in Nottinghamshire, and on earth which had been thrown out of it. 18 June.—*Obs.* 9473. Specimen gathered by Dr. Boehmer near Gottingen.—*Linn. fil. suppl.* 81. *Linn. suec.* 1; *sp.* i. 6; *a Willd.* i. 26; *a Roem. & Schult.* i. 41; *a Spreng.* i. 19. *Willd. ber.* 1; *enum.* i. 7. *Krock.* i. 2. *Honck.* i. 4, and note by Willd. 6.—*Relh. ed. I.* 1; *ed. II.* 2. *Sibth. ox.* 1. *Roth. germ.* i. 2; *ii. pars.* i. 2; *enum.* i. 6. *Bot. arr.* i. 2. *Fl. lond.* iv. 1. *t. Poll.* i. 1. *Fl. dan. t.* 87. *Smith. brit.* i. 4; *engl.* i. 4. *Lam. & Dec.* iv. 415; *syn.* 327. n. 8657. *Retz. scand.* 2. *Thuill.* 1. *Vahl. enum.* i. 13. *Wahl. ups.* 1; *lapp.* 1, whose var.  $\beta$  is the plant as it grows under water.—*Michaux* i. 1, who says the American plant differs in having fewer leaves in a whirl.

*H. lanceolata.* *Retz. obs.* iii. 7. *t.* 1. probably as *M. Wahlenberg* conjectures a maritime variation.

*Limnopence vulgaris.* *Scop. carn.* i. 5.

*Hippuris.* *Linn. lapp.* 1.

*Limnopence.* *Cord. fol.* 150. *p.* 1. No fig.—*Vaill. paris.* 117. *Dill. ap. Raii syn.* 136. *Hall. hist.* ii. 264.

*Polygonum foemina equiseti facie.* *Bauh. J.* iii. 782.

*Polygonum femina.* *Dod.* 113, *repr. in*

*Polygonon femina, semine vidua.* *Lob. ic.* i. 792 and *Cauda equina foemina.* *Ger. by Johns.* 1114. (The spike of an *Equisetum* is added to the outer stem.)

*Equisetum alterum, brevioribus foliis.* *Park. theatr.* 1200, *inner fig. cop. in*

*Equisetum palustre, brevioribus foliis, polyspermon.* *Brit. herb.* 81. *t.* *Bauh. Casp. theatr.* 243. *Raii syn. ed. II.* 42. *Tourn. paris.* 262. *Vaill. paris.* 42.

(*Equisetum palustre, linariae scopariae folio.* *Bauh. Casp. theatr.* 241, is described as having scabrous leaves.)

*Stem terete, 2 feet long, cellular within. Leaves verticillate, costate, the lower in eights, 1 inch long; the*

upper extending beyond the end of the stem, to 14 in a whirl, to 3 inches long,  $1\frac{1}{2}$  tenth of an inch broad.

*Obs.* 8066.—Glabrous. *Stem* terete, attenuate, when growing in water, brownish purple below, 2 feet and upwards long, when growing on land 8 to 10 inches long, when cut transversely appearing composed of a number of tubes of various diameters, surrounding a terete tough brownish white cord with knots at each joint. *Leaves* mostly just sensibly attenuate at the base, to 7-10ths long, and somewhat more than  $\frac{1}{2}$  10th broad, verticillate, contiguous, from 8 to 13, somewhat longer than and to twice as long as the internodia, glabrous, smooth, dotted, with microscopic white dots; costa barely perceptible. *Flowers* sessile, axillary, erect, nearly as broad and twice as broad as the leaves, and in the plants growing on land one third and nearly half as long as the internodia, some female. *Calyx* erect, undulate very short. *Stamen* erect, between the stigma and the outer side of the calyx. *Filament* cylindric, white. *Anthera* bilocular, rufous crimson, cordate, cuspidate. *Pollen* white, globose. *Germen* oval. *Stigma* fusiform, pubescent, erect, as long as the germen and as the stamen after flowering, somewhat longer than the stamen before flowering, inserted between the stamen and the inner side of the calyx. *Obs.* 9472.—*Nut* oval, cuspidate at the base, hard,  $\frac{1}{2}$  10th of an inch long, rufo-fuscous; parietes thick, favose, whitish tawny; cavity shining, levigate, open at the base, somewhat wider than the thickness of the parietes. *Perisperm* oblong, terete, rufo-fuscous. *Tunic* semi-transparent. *Corculum* oblong, terete. *Cotyledons* 2, oblong, granular. *Rostellum* rounded, pointing to the hilum, granular. *Obs.* 9473.

#### Order 2.

### DIGYNIA.

#### 6. BLITUM.

*Calyx* trifidus. *Corolla* nulla. *Semen* lenticulare ovaleque. — *Calyx* trifid. *Corolla* none. *Seed* lenticu-

lar and oval. *Obs.* 12094; *Nutt.* i. 4, who describes the seed of *B. chenopodioides* as not surrounded by a berrylike calyx, and whose *B. maritimum* has a calyx which does not become berrylike. *B. chenopodioides* is described as having a calyx which continues juiceless.—*Gaertn.* ii. 200. t. 126. *L.*

1. **BLITUM terminale.** Calyx fructiferus succulentus. Capitula axillaria terminaliaque.—Calyx of the fruit succulent. Capitula axillary and terminal. *Obs.* 6841. Specimen gathered in a garden.—*Obs.* 12094. In Darley garden. Sept.

*B. capitatum.* *Linn. sp.* i. 6; *a Willd.* i. 80; *a Roem. & Schult.* i. 48. *Vahl. enum.* i. 17. *Willd. enum.* i. 9. *Link. enum.* i. 8. *Mull.* 2. *Schrad. germ.* i. 4. *Lam. & Dec.* iii. 382; *syn.* 195. n. 2239. *Thuill.* 3. *Host. fl.* i. 2; *syn.* 2. *Hort. kew. ed. I.* i. 7; *ed. II.* i. 14. *Big.* 3. *Pursh.* i. 4. *Michaux.* i. 2. On rubbish.—*Honck.* i. 13, where we ought probably to read terminalibus, foliis triangularibus dentatis.

*Morocarpus capitatus.* *Scop. carn.* i. 6. *Moench. carb.* i. 342.

*B. capitellis spicatis terminalibus.* *Linn. ups.* 3. n. 1. *Kram.* 2:

*B. foliis triangularibus dentatis.* *Linn. cliff.* 28. n. 2 *a*

*Morocarpus major.* *Rupp. ab Hall.* 337.

*Chenopodio-Morus major.* *Boerh.* ii. 91.

*Atriplex silvestris lappulas habens.* *Matth. a Casp.*

*Bauh.* 365. *Bauh. Casp. pin.* 119. n. 7.

*Atriplex mori fructu major, sive frugifera major.*

*Mor. & Bob. s. v. t.* 32. f. 9.

*Leaves*, laminae triangular, dentate, subcordate at the base, to 4½ inches long. *Floral leaves* hastate, entire at the margin. *Capitula* when in fruit crimson; terminal capitula crowded. *Calyx* trifid, when in fruit succulent; segments triangulari-ovate, acute. *Seed* 1, naked, oval, subcomprest, levigate, as long as the calyx, atrous, when steeped atro-rufous, somewhat more than a third of the tenth of an inch long.

2. **BLITUM virgatum.** Calyx fructiferus succulentus. Capitula axillaria.—Calyx of the fruit succulent. Capitula axillary. *Obs.* 7559. On a dunghill near

Chesterfield.—*Linn. sp.* i. 7; *a Willd.* i. 30; *a Roem. & Schult.* i. 48; *a Spreng.* i. 22. *Vahl. enum.* i. 17. *Lam. & Dec.* iii. 381; *syn.* 195. *n.* 2288. *Hort. kew. ed. I.* i. 7; *ed. II.* i. 14. *Willd. enum.* i. 9. *Bluff. & Fing.* i. 5. *Bieb.* i. 4. *Thwill.* 4. *Kniph.* v. *n.* 19. *Honck.* i. 14. *Gou. hort.* 3. Native of Spain.

*B. capitatum.* *Krock.* 1. 5.

*Morocarpus foliosus.* *Moench. marb.* i. 342.

*B. capitellis sparsis lateralibus.* *Linn. ups.* 3. *n.* 2.

*B. foliis triangularibus dentatis.* *Linn. cliff.* 28.

*B. foliis semitrilobis rariter dentatis.* *Hull. hist.* ii. 264.

*Morocarpus minor.* *Rupp. ab Hall.* 337.

*Chenopodio-Morus minor.* *Boerh.* ii. 91.

*Atriplex silvestris baccifera.* *Clus. hist.* ii. 135, *cop. in*

*Atriplex baccifera rubra.* *Park. theatr.* 748, *and*

*Atriplex fragifera media.* *Mor. & Bob. s. v. t.* 38. *ord.* 1. *f.* 10, *and repr. in*

*Atriplex baccifera.* *Ger. by Johns.* 326. *Raii hist.* i. 197. *n.* 5.

*Atriplex sylvestris lappulas habens.* *Bauh. Casp. prodr.* 58, *possibly abr. in*

*Atriplex fragifera minor.* *Mor. & Bob. s. v. t.* 38. *ord.* 1. *f.* 11.

*Atriplex mori fructu minor, seu fragifera minor.* *Raii hist.* i. 197. *n.* 6.

*Leaves,* laminae triangular, dentate, subcordate at the base, to  $1\frac{1}{4}$  inch long. *Calyx* tripartite, with oval concave segments; after flowering increasing in size, becoming turbinate, succulent, sweetish, tawny scarlet, trifid; segments connivent surrounding the seed. *Style* none. *Stigmata* 2, patent, permanent. *Vasa deferentia* 2. *Seed* lenticular, vertical, smooth, atrous, with a slight furrow a little above the base on each side, nearly  $\frac{1}{2}$  tenth of an inch long, nearly twice as large as that of *B. terminale*, adherent by a whitish hilum to the base of the calyx. *Tunic* coriaceous, rufous, semitransparent. *Indusium* tawny, reticulate. *Perisperm* central, bluish white. *Corculum* annular. *Cotyledons* 2, linear.

## Class 2.

## DIANDRIA.

## Order 1.

## MONOGYNIA.

## 7. JASMINUM.

*Calyx* quinquefid to decemfid. *Corolla* hypocrateriform. *Berry* dicoccous. *Obs.* 4277. *Gaertn.* i. 196. t. 42. L.

*Berry* often monococeous from abortion.

1. *JASMINUM villosum*. Folia lanceolata ellipticaque villosa opposita. Calycis laciniae tubo breviores, setaceae, pubescentes. Paniculae terminales trichotomae. —Leaves lanceolate and elliptic, villose, opposit. Segments of the calyx shorter than the tube, setaceous, pubescent. Panicles terminal, trichotomous. *Obs.* 12023. Specimen from Wright, gathered by Roxburgh in India, and named

*J. elongatum*. *Roxb. ind.* i. 89.

*Branches* tomentose, grey. *Leaves* opposit, entire at the margin. *Panicle* tomentose, thrice trichotomous. *Calyx*, tube turbinate; segments inserted into the margin of the tube, patulous and erect, somewhat shorter than the tube. *Corolla* yellow, hypocrateriform; tube cylindric, scarcely thickening at the end, 4 times as long as the calyx; segments lineari-lanceolate, nearly as long as the tube. *Capsule* ovate, rugose, blackish, twice as long as the calyx.

2. *JASMINUM bracteatum*. Folia elliptico-ovata, acuminata, tomentoso-pubescentia. Calycis laciniae tubi longitudine. Flores fasciculati. Rami tomentosi. Stylus exertus.—Leaves elliptico-ovate, acuminate,



tomentoso-pubescent. Segments of the calyx as long as the tube. Flowers fasciculate. Branches tomentose. Style projecting. *Obs.* 12025. Specimen from Wright, gathered by Roxburgh, who called it a new species.—*Roxb. ind.* i. 92. *Linn. a Spreng.* i. 31.

*Branches* ferruginous. *Leaves* ferruginous underneath, upwards smaller and more elliptic. *Petioles* tomentose, with an articulation about the middle. *Floral leaves* elliptico-oval, acuminate. *Fasciculus* terminal, quinqueflorous. *Flowers* erect, nearly sessile. *Bracteae* setaceous, pubescent, shorter than the segments of the calyx. *Calyx* pubescent; tube poculiform, subnervose; segments setaceous, erect, as long as the tube. *Corolla* 7 tenths of an inch long; tube somewhat more than twice as long as the calyx, slightly dilated upwards, multinervose; limb sexpartite; segments oblong, acuminate-cuspidate at the end. *Stamina* 2, inserted below the middle of the tube. *Antherae* oblong, cuspidate. *Style* filiform, longer than the tube of the corolla. *Stigma* oblong.

3. *JASMINUM arborescens*. Folia ovata, acuminata, glabra. Calycis lacinae tubo longiores. Corolla multifida. Paniculae villosae. Petioli medio articulati.—Leaves ovate, acuminate, glabrous. Segments of the calyx longer than the tube. Corolla multifid. Panicles villose. Petioles articulated about the middle. *Obs.* 12021. Specimen from Wright, gathered by Roxburgh in India.—*Roxb. ind.* i. 94. *Linn. a Spreng.* i. 31. (*J. multiflorum*. *Roth. sp.* 6 is described as having subpilose leaves and the segments of the calyx reflex.)

*Leaves* opposit and nearly opposit. *Petioles* and *panicles* villose. *Calyx* sexfid and septemfid, pubescent; segments linear, canaliculate, comprest, erect and patulous; somewhat longer than the tube; sinuses rounded. *Corolla* yellow; tube thrice as long as the segments of the calyx. Nearly allied to *J. gracile*.

4. *JASMINUM gracile*. Folia ovata, acuminata, glabra. Calycis lacinae tubo quater breviores. Paniculae trichotomae terminales. Petioli infra medium articulati.—Leaves ovate, acuminate, glabrous. Segments

of the calyx four times shorter than the tube. Panicles trichotomous, terminal. Petioles articulated below the middle. *Obs.* 7472. In Soho nursery.—*Obs.* 12028. Specimen from Bawtry garden.—*Hort. Kew. ed. II.* i. 16. *Brown, Rob.* i. 521. *Linn. a Roem. & Schult.* i. 78; *a Spreng.* i. 31. *Link. enum.* i. 31?

*J. acuminatum.* *Brown, Rob.* i. 521. *Linn. a Spreng.* i. 31.

*Branches* terete, microscopically pubescent; hairs very short. *Leaves* ovate and oval, opposit, triplinervose; margin entire. *Petioles* very short; the articulation a little below the middle, the lower half pubescent, linear, the upper glabrous dilated. *Panicles* microscopically pubescent, terminal and axillary; terminal panicles sessile, with to 11 flowers; lateral panicles pedunculate. *Peduncles and branches of the panicles* filiform. *Pedicles* with an articulation below the middle; lower half pubescent, upper half glabrous, thickening. *Bractea* subulate, pubescent. *Calyx* turbinate, pubescent; teeth triangulari-setaceous, erect and patent. *Corolla* white, of the scent of *J. officinale*; tube four times as long as the calyx; segments 5 and 6, ovato-lanceolate, acute. *Stamina* 2, inserted about the middle of the tube of the corolla. *Filaments* very short. *Stigma* oblong, somewhat thicker than the style, slightly bifid. *Obs.* 7472.

5. *JASMINUM elongatum.* *Folia* ensato-cordata, glabra. *Calycis* laciniæ tubo longiores, setaceae, pubescentes, reflexae.—*Leaves* ensato-cordate, glabrous. Segments of the calyx longer than the tube, setaceous, pubescent, reflex. *Obs.* 12022. Specimen from Wright, gathered by Roxburgh in India and named *J. scandens*.—*Linn. a Willd.* i. 37. (*Vahl. enum.* i. 28; *Linn. a Roem. & Schult.* i. 81; *a Spreng.* i. 31 is described as having ovato-lanceolate leaves and terminal peduncles.—*Roxb. ind.* i. 89 is described as having lanceolate villose leaves and terminal corymbi.)

*J. scandens.* *Vahl. enum.* i. 27, *cop. in Linn. a Willd.* i. 37, *a Roem. & Schult.* i. 80; *a Spreng.* i. 31. *Roxb. ind.* i. 88.

*Nyctanthes elongata.* *Linn. fil. suppl.* 82, where we should perhaps read *elongatis*, *ramis minoribus*

teretibus.—*Berg. in ph. tr. abr. by Hutt.* xiii. 147. t. 4. f. 6.

*Nyctanthes scandens.* *Retz. obs.* v. 9.

*Leaves* acuminato-attenuate at the end, opposit. *Petioles* articulated below the middle. *Corymbi* axillary, opposit, patent, crowded, pubescent, shorter than the leaves. *Calyx* pubescent; tube turbinate, nervose; segments inserted into the margin of the tube, reflex in different directions. *Corolla* hypocrateriform, thrice as long as the calyx; tube gradually dilated, slightly curvd, multinervose,  $1\frac{1}{2}$  as long as the limb; limb septempartite; segments oblongo-ensate, attenuato-acuminate. *Stamina* 2, inserted into the tube of the corolla a little above the base. *Filaments* adherent to the tube. *Antherae* oblong. *Style* filiform, very short. *Stigma* oval, bifid; segments connivent, incurvate.

6. **JASMINUM** *Sambac*. Folia ovata ovalia cordata-que. Calycis laciniae tubo duplo longiores, ensatae. Ramuli petiolique villosi.—Leaves ovate oval and cordate. Segments of the calyx twice as long as the tube, ensate. Shoots and petioles villose. *Obs.* 4354. In gardens.—*Bot. mat. med.* i. 13. *Linn. a Willd.* i. 35.; *a Roem. & Schult.* i. 78; *a Spreng.* i. 30. *Vahl. enum.* i. 25. *Hort. ken. ed. II.* 1. 15. *Bot. reg. t.* 1.

*J. Sambac.* *Roxb. ind.* i. 87. Calyx with from 5 to 9 segments. In forests.

*Nyctanthes Sambac.* *Burm. N. ind.* 4. *Thunb. jap.* 17. *Gaertn.* 109. t. 106?

*Nyctanthes.* *Linn. zeyl.* 5.

*J. sive Sambach.* *Boerh.* ii. 217.

*Calyx* and *corolla* octofid and decemfid.

♂ *plenum.* (Variation.) *Bot. mat. med.* ♂

*J. limonii folio conjugato, flore odorato pleno vario.* *Burm. J. zeyl.* 128. t. 58. f. 2.

7. **JASMINUM** *pubescens*. Folia cordata. Calycis laciniae tubo duplo longiores. Flores fasciculati.—Leaves cordate. Segments of the calyx twice as long as the tube. Flowers fasciculate. *Obs.* 12024. Specimen from Wright, gathered by Roxburgh in India.—*Roxb. ind.* i. 90. *Linn. a Willd.* i. 37, from

*Nyctanthes pubescens.* *Koen. ap. Retz. obs. v. 9.*  
*J. hirsutum.* *Hort. kew. ed. II. i. 16. Bot. reg. t. 15.*  
*Nyctanthes multiflora.* *Burm. N. ind. 5. t. 3. f. 1,*  
 which has ovate glabrous leaves and terminal fasci-  
 culli may prove a variety.

*Flowering branches* terete, tomentose, tawny. *Leaves*  
 opposit, subacuminate, cuspidate; costa and veins to-  
 mentose, tawny. *Petioles* short, tomentose, tawny.  
*Fasciculi* pedunculate, axillary, opposit, crowded.  
*Bracteae* setaceous, pubescent, half as long as the seg-  
 ments of the calyx. *Calyx* tomentose, to 4 tenths of  
 an inch long; segments 7, setaceous, erect. *Corolla*  
 thrice as long as the calyx, 1 inch 1 tenth long; tube  
 dilated upwards, multinervose, nearly twice as long as  
 the calyx; limb octopartite, as long as the tube; seg-  
 ments ensato-lanceolate, cordate at the base, with lon-  
 gitudinal veins; angles at the base incumbent. *Sta-*  
*mina* 2, inserted above the base of the tube. *Antherae*  
 oblong. *Pollen* globose, yellow. *Style* capillary, as  
 long as the tube of the corolla. *Stigma* clavate.

9. *JASMINUM fruticans.* *Folia* ternata simpliciaque,  
 alterna; *foliolis* oblongis. *Calycis* laciniae tubo lon-  
 giores.—*Leaves* ternate and simple, alternat; folio-  
 les oblong. Segments of the calyx longer than the  
 tube. *Obs.* 4277. In a garden against a south wall.  
 —*Linn. sp. i. 9; a Willd. i. 39; a Roem. & Schult.*  
*i. 84; a Spreng. i. 32. Willd. enum. i. 10. Link.*  
*enum. i. 32. Vahl. enum. i. 33. Hort. kew. ed. I. i.*  
*9; ed. II. i. 17. Lam. & Dec. iii. 500; syn. 216.*  
*Bot. mag. t. 461. Bieb. i. 4. 413. Asso 157. Pall.*  
*ross. 8vo ii. 58. Sibth. prodr. i. 3; ii. 355. Gou. hort.*  
*6; monsp. 5. Gaertn. i. 196. t. 42.*

*J. heterophyllum.* *Moench. marb. i. 467.*

*J. Linn. ups. 5. n. 4. Ger. Lud. 320.*

*Polemonia.* *Dalech. ii. 1187.*

*Polemonium.* *Raii eur. 206.* Near Scalea in the king-  
 dom of Naples and in hedges about Montpellier.  
 —*Lob. adv. 389, repr. in ic. ii. 52. Ger. by Johns.*  
*1810. repr. from*

*Trifolium fruticans.* *Dod. 561, which repr. in ed. II.*  
 VOL. I. C

571, folioles represented as acute, & *cop. & improved* in *Bauh. J. i. pars ii. 374*, folioles being obtuse.

*Stem* to 16 feet long. *Branches* angular. *Leaves* mostly ternate; terminal foliole often obovato-oblong. *Calyx*, segments setaceo-linear, twice and thrice as long as the tube. *Corolla* yellow. *Berries* globular, monococcous, sometimes dicoccous, shining, brownish black. *Seeds* oval. *Cotyledons* 2, oval.

β *simplicifolium*. (Variation) Most of the leaves simple. *Obs.* 12019. Specimen gathered by Jonathan Rogers Stokes in a square in Leeds.

*Branch* a foot long, with numerous short lateral branches. *Leaves* 7 tenths of an inch long.

9. JASMINUM *humile*. Folia ternata pinnataque, alterna; foliolis ellipticis. Calycis laciniae tubo ter breviores.—Leaves ternate and pinnate, alternat; folioles elliptic. Segments of the calyx thrice as short as the tube. *Obs.* 12020. Specimen gathered by Broussonet probably near Montpellier. The account of pinnate leaves from *Sauv. & Linn. sp. i. 9*; *a Murr. 56*; *a Willd. i. 40*; *a Roem. & Schult. i. 84*; *a Spreng. i. 32*. *Vahl. enum. i. 33*. *Willd. enum. i. 10*. *Link. enum. i. 32*. *Gou. hort. 6*; *monsp. 5*. *Moench. marb. i. 467*. *Hort. kew. ed. I. i. 9*; *ed. II. i. 17*. *Lam. & Dec. v. 394*. *Kniph. v. n. 45*. *Boerh. ii. 216*.

*J. foliis alternis ternatis pinnatisque, ramis angulatis. Linn. ups. 5. n. 3. Sauv. 222.*

*J. humilius luteum. Magn. hort. 105.*

*J. sive Gelseminum luteum. Bauh. J. ii. 102.*

*J. luteum. Besl. hort. aestiv. ord. 11. fol. 2. Park. parad. 406. t. 409. t. 3 & Lob. ic. ii. 106, cop. in Polemonium. Park. theatr. 1466, are erroneously represented with acute corollae.*

Glabrous. *Shoots* comprest, with a deprest line on each side. *Leaves* alternat, shining on the upper surface; folioles subundulate; lateral folioles lanceolate; terminal foliole elliptic,  $1 \frac{1}{4}$  as long as the lateral folioles. *Calyx* turbinate, pentagonal, subnervose, glabrous; segments triangulari-ensate, erect; sinuses semicircular.

β *revolutum*. Limb of the corolla as long as the tube.

*Obs.* 12243. From Newcastle nursery.

*J. revolutum*. *Linn. a Spreng.* i. 33. *Bot. mag. t.* 1731.

(*J. chrysanthemum*. *Roxb. ind.* i. 98, is described as having a calyx whose segments are nearly as long as the tube of the corolla.)

*Corolla* yellow; segments oval, cordate at the base revolute at the margin, horizontal and reflex. *Stamina* projecting, yellow, inserted between the middle and end of the tube. *Filaments* very short. *Antherae* ensate.

10. *JASMINUM odoratissimum*. Folia ternata pinnata simpliciaque; foliolis oblongis ovalibus ellipticisque, cuspidatis. Calyx quinquedentatus; dentibus brevissimis.—Leaves ternate pinnate and simple; folioles oblong oval and elliptic, cuspidate. Calyx quinquedentate; teeth very short. *Obs.* 10428. In Highfield garden, 21 July.—*Obs.* 10427. Specimen gathered in Upton garden.—The account of pinnate leaves from *Linn. sp.* i. 10; *a Murr.* 56; *a Willd.* i. 40; *a Roem. & Schult.* i. 84; *a Spreng.* i. 32. *Willd. enum.* i. 11. *Vahl. enum.* i. 33. *Schult. obs.* 1. *Hort. kew. ed. I.* i. 10; *ed. II.* i. 18. *Bot. mag. t.* 285.

*J. odorum*. *Sal. R. hort.* 4. Found in Madeira by Masson.

*J. foliis alternis ternatis pinnatisque, ramis teretibus*. *Linn. ups.* 5. n. 2.

*J. indicum flavum odoratissimum*. *Boerh.* ii. 216. n. 5.

*J. flavum odoratum*. *Barr. ic.* 62.

Gelseminum sive *J. indicum*. *Park. theatr.* 1465, outer fig.

Glabrous. *Branches*, the larger terete, verrucose; the smaller angular. *Leaves*, the lower of a branch simple, oval; the upper ternate; folioles elliptic, cuspidate. *Calyx* turbinate, glabrous; segments triangular. *Corolla* yellow, sweetscented; segments oval, retuse, with a line along the middle.

11. *JASMINUM heterophyllum*. Folia ternata simpliciaque; foliolis ovatis acutis. Calyx quinquedentatus dentibus brevissimis. Paniculae fastigiatæ, pubescentes.—Leaves ternate and simple; folioles

ovate, acute. Calyx quinqueidentate; teeth very short. Panicles fastigiate, pubescent. *Obs.* 11341. Specimen from Smith, from Nepaul in India.—*Roxb. ind.* i. 99. 164.

*Folioles* coriaceous, to 4 inches long, some of the upper ovato-lanceolate. *Petioles* canaliculate, articulated at the end. *Calyx* turbinate, pubescent, pentagonal; teeth triangular. *Corolla* hypocrateriform; segments oval, acute, somewhat shorter and twice as short as the tube. Closely allied to *J. odoratissimum*.

12. **JASMINUM azoricum.** Folia ternata, opposita; foliolis ovatis. Calycis laciniae tubo ter breviores. Paniculae trichotomae. Corollae laciniae longitudine tubi.—Leaves ternate, opposit; folioles ovate. Segments of the calyx thrice as short as the tube. Calyx quinqueidentate; teeth very short. Panicles trichotomous. Segments of the corolla as long as the tube. *Obs.* 3952. In a garden.—*Vahl. enum.* i. 31. *Linn. sp.* i. 9; *a Willd.* i. 39; *a Roem. & Schult.* i. 83; *a Spreng.* i. 32. *Willd. enum.* i. 10. *Gou. hort.* 6. *Hort. kew. ed. I.* i. 9; *ed. II.* i. 17. *Mill. Ph. dict. n.* 6. *Burm. N. ind.* 6. *Link. enum.* i. 32. *Bot. reg. t.* 89. *Boerh.* ii. 216. n. 7.

*J. trifoliatum.* *Moench. marb.* i. 467.

*J. Linn. zeyl.* 5.

*J. album.* *Pluk. alm.* 195. t. 303. f. 2.

*Branches* obsoletely tetragonous, microscopically pubescent, sometimes glabrous above. *Petioles* pubescent and glabrous. *Folioles* shining. *Panicles* terminal and axillary; branches decussate, pubescent. *Calyx* cyathine, nearly glabrous, semiquinquefid; segments subulato-triangular, erect. *Corolla* white, sweetscented; segments cordato-sagittate at the base, shorter and a little shorter than the tube.

13. **JASMINUM officinale.** Folia pinnata, foliolis acutis cuspidatisque. Calycis laciniae subulatae tubo triplo longiores.—Leaves pinnate; folioles acute and cuspidate. Segments of the calyx subulate, thrice as long as the tube. *Obs.* 187. In a garden.—*Obs.* 9943. In Renishaw garden. 15 Sept.

*a acutum.* (Variety) Lateral folioles acute. *Obs.* 187.

**J. officinale.** *Bot. mat. med.* i. 13. *Linn. mant.* 316; *a Murr.* 56; *a Willd.* i. 40; *a Roem. & Schult.* i. 85; *a Spreng.* i. 32. *Vahl. enum.* i. 34. *Hort. kew. ed. II.* i. 18. *Lam. & Dec.* iii. 500, seeds not ripening in France; *syn.* 216. *Bieb.* i. 5. 413. On rubbish in an old town.—*Burm. N. ind.* 5. *Willd. enum.* i. 11. *Link. enum.* i. 32. *Gou. hort.* 5 a; *monsp.* 5. *Schult. obs.* 1. *Honck.* i. 78. *Moench. marb.* i. 467. *Seb. & Maur.* 3. In hedges.—*Pall. ross.* 8vo ii. 59. Specimens gathered in Alpine thickets about Kutais.

**J. Linn. ups.** 5. n. 1. *Boerh.* ii. 216. n. 1. *Hall. hist.* i. 230. Among rocks at Chiavenna.

**J. flore albo.** *Besl. hort. aest. ord.* 11. fol. 1.

**Gelseminum.** *Cam. epit.* 36.

**Gelseminum sel J. album vulgare.** *Park. Theatr.* 1464, *cop from*

**J. album.** *Ger. by Johns.* 892. *Park. parad.* 406. t. 409. f. 1. *Raii hist.* ii. 1599. Produces berries containing round seeds in Italy.

*Leaves*, lateral folioles ovate, acute; upper pair mostly confluent; terminal foliole ovato-lanceolate, acute, thrice as long as the rest. *Obs.* 187.

**β ternifolium.** (Variation) Leaves in threes. *Obs.* 12026. Specimen gathered by Mr. Jos. Stokes.

**γ pumilum.** (Variation) Leaves 1 inch 8 tenths long. *Obs.* 12027. Specimen gathered in a garden.

**δ grandiflorum.** (Variety) Lateral folioles obtuse cuspidate. *Obs.* 9943. *Gou. hort.* β Seldom produces ripe seeds.

**J. grandiflorum.** *Linn. sp.* i. 9; *mant.* 316; *a Murr.* 56; *a Willd.* i. 41; *a Roem. & Schult.* i. 85; *a Spreng.* i. 33. *Bot. reg. t.* 91. *Link. enum.* i. 32. *Hort. kew. ed. I.* i. 10; *ed. II.* i. 18. *Vahl. enum.* i. 34. *Willd. enum.* i. 11. *Sal. R. hort.* 12. *Moench. marb.* i. 467. *Mill. Ph. dict. n.* 4, who received it from Tobago.—*Roxb. ind.* i. 98. In gardens.

**J. Browne,** *Patr.* 115. n. 1. *Raii hist.* ii. 1600. n. 5. *Boerh.* ii. 216. n. 2.

**Gelseminum catalonicum.** *Cam. epit.* 37. *Besl. hort. aest. ordo arb. & fr. fol.* 13. f. 1.



*J. puniceum.* *Dalech.* ii. 1431, *imtt. in*

*J. hispanicum.* *Bauh. J.* ii, 101, *and cop. in*

*Gelseminum* vel *J. catalanicum.* *Park. theatr.* 1464,  
lateral folioles and corollae made acute in the copy.

*J. catalanicum.* *Park. parad.* 406. No fig.

*Chamaegelseminum.* *Lob. obs.* 543. No fig.

(*J. candiflorum* majus. *Ger. by Johns.* 892, has a pentapetalous corolla and more than 2 stamina.)

*Branches* green. *Leaves*, lateral folioles unequal at the base; terminal foliole ovato-elliptic,  $1\frac{1}{4}$  and twice as long as the lateral folioles, often confluent with the 2 upper lateral folioles. *Corolla* white; tube twice to four times as long as the calyx; limb somewhat longer than the tube, very slightly tinged with crimson on the under side; segments elliptico-oblong, cuspidate; scent similar to but rather more fragrant than that of *a*

## 8. LIGUSTRUM.

*Calyx* and *corolla* quadrifid. *Berry* bilocular; cells dispermous and monospermous. *Obs.* 3408. *Gaertn.* ii. 72. *t.* 92. *L.*

1. **LIGUSTRUM** *vulgare.* Folia glabra lanceolata oblongaque. Paniculae coarctatae.—Leaves glabrous lanceolate and oblong. Panicles compact. *Obs.* 3408. In hedges, 25 Sep.—*Bot. mat. med.* i. 14. *Linn. a Willd.* i. 41; *a Roem. & Schult.* i. 75; *a Spreng.* i. 33; *hal.* 5; *Willd. ber.* 7; *enum.* i. 11. *Vahl. enum.* i. 35. *Lam. & Dec.* iii. 501; *syn.* 216 *Gou. hort.* 6. An evergreen; *monsp.* 5. *Asso* 1. *Ferb.* 190. *Schrad. germ.* i. 7. *Kunth. ber.* 3. *Poll.* i. 6. *Krock.* i. 6. *Wahl. helv.* 3; *suec.* i. 3. *Scop. carn.* i. 7. *Gaertn.* i. 72. *t.* 92. *Succ.* i. 6. *Pall. ross.* 8vo. ii. 57. *Bieb.* i. 5; ii. 453. *Host. syn.* 3; *fl.* i. 20. *Bluff & Fing.* i. 9. *Moench. marb.* i. 469. *Boenningh.* 3. *Roth. germ.* i. 4; ii. *pars* i. 4. *Seb. & Maur.* 4. *Pollin.* i. 7. *Sibth. ox.* 4; *prodr.* i. 3. *Lightf.* i. 72. *Hook. scot.* i. 3. *Smith. engl.* i. 13. *Schlect. ber.* i. 3. *Gmel. C. bad.* i. 12. *Michaux.* i. 3. *Pursh.* i. 4. *Big.* 4. *Bart. phil.* i. 4. *Thunb. jap.* 17. Leaves somewhat broader and more obtuse than in European plants.

*Ligustrum*. *Lob. obs.* 564, *repr. in Ger. by Johns.* 1894. *Hall. hist.* i. 230. *Raii syn.* 465. In woods thickets and hedges.

*Leaves* acute and cuspidate. *Corolla* infundibuliform; segments oblongo-ovate; margin inflex. *Berries* subrotundo-obovate, half grown, stil green, bilocular; cells dispermous.

*Native* of the Levant, Europe as far north as Sweden, Japan and North America, on schistus in Wales, on limestone and gravel in Derbyshire, on gritstone round Eckington, and on marle in Worcestershire. I do not remember seeing fruit in the hedges on the gritstone.

2. *LIGUSTRUM japonicum*. *Folia* glabra elliptica. *Paniculae* ramis patentibus.—*Leaves* glabrous elliptic. Branches of the panicles patent. *Obs.* 12435. In Alton garden. Flowers ready to expand 30 Sep.—*Linn. a Willd.* i. 42.; *a Roem. & Schult.* i. 76; *a Spreng.* i. 33. *Vahl. enum.* i. 35. *Thunb. jap.* 17. t. 1.

*Glabrous*. *Leaves* subacuminate. *Calyx* turbinate quadri-dentate. *Stamina* 2 and 3, inserted into the corolla. *Style* clavato-lanceolate. *Stigma* simple and bifid.

## 9. PHILLYREA.

*Calyx* and *corolla* quadrifid. *Drupe*. *Nut* bilocular, with a chartaceous shell; cells monospermous. From *Gaertn.* ii. 71. t. 92. *L.*

1. *PHILLYREA conferta*. *Racemi* axillares conferti foliis breviores.—*Racemi* axillary crowded shorter than the leaves. *Obs.* 9067. 9068. Specimens in fl. and fr. gatherd by Broussonet probably in the neighbourhood of Montpellier.—*Obs.* 12342. Specimen gatherd by Mr. Boraston in hedges near Leghorn.—*Obs.* 7902. Specimen gatherd in Ballard's garden.—*Obs.* 9069. Specimen gatherd in Utrecht garden.—*Obs.* 4123. In a garden, without fructifications.—*Obs.* 9066. Specimen gatherd in a garden.

*Leaves* microscopically tuberculate on the upper side, microscopically punctate underneath.

*Native* of the south of Europe.

*a linearis.* (Variation) Leaves lineari-lanceolate. *Obs.* 9068.

*P. angustifolia.* *Linn. sp.* i. 10; *a Murr.* 57; *a Willd.* i. 43; *a Roem. & Schult.* i. 73; *a Spreng.* i. 33. *Vahl. enum.* i. 36. *Willd. enum.* i. 11. *Link. enum.* i. 34; *Lam. & Dec.* iii. 500; *syn.* 216. *Hort. kew. ed. I.* i. 11.  $\alpha$ ; *ed. II.* i. 20  $\alpha$  *Moench. barb.* i. 469, *Seb. & Maur.* 4. *Raii eur.* 202. In Tuscany and about Montpelier.—*Asso* l. *Gou. hort.* 6  $\beta$  *monsp.* 6. *Mill. Ph. dict. n.* 6. *Lob. obs.* 565, *repr. in ic.* ii. 132, *Ger. by Johns.* 1395, *cop. in Bauh. J. i. pars* i. 538, *repr. from*

*P. IIII.* *Clus. hisp.* 64, which *repr. in hist.* i. 52, and *Cyprus. Dod.* 764, and *cop. in*

*P. minor.* *Dalech.* i. 258.

*P. angustifolia secunda.* *Park. theatr.* 1444.

*P. Ger. Lud.* 321. *n* 1. *All. nic.* 1. *Linn. ups.* 5  $\beta$

*Phylerea minor.* *Lob. adv.* 420. In fr.

Leaves to 2 inches long, to 3 tenths of an inch broad. *Calyx* turbinate subquadrifid; segments semicircular, some rather acute, hirsutulous at the margin. *Germen* ovate, rugose. *Style* as long as the germen. *Stigma* oval, bifid, as long as the style. *Obs.* 9068.

$\beta$  *lanceolata* (Variation) Leaves lanceolate. *Obs.* 7902. 12342.

*P. media.* *Bot. mat. med.* i. 15. *Gou. monsp.* 6. *Sibth. prodr.* i. 3. *Host. syn.* 3. *Schrad. germ.* i. 8. *Willd. enum.* i. 11. *Seb. & Maur.* 4.

*P. angustifolia*  $\alpha$  *Gou. hort.* 6.

*P. ligustrifolia.* *Mill. Ph. dict. n.* 4.

*P. folio ligustri.* *Magn. monsp.* 202; *hort.* 159.

*P. latiusculo folio.* *Raii eur.* 202. Varies so much in the shape and margins of the leaves that doubtful whether all the kinds enumerated are specifically different.

*Phylerea.* *Lob. adv.* 420. Outer fig.

*P. narbonensis florida.* *Lob. obs.* 564, *repr. in*

*P. latiore folio.* *Ger. by Johns.* 1395, and *cop. in*

*P. angustifolia prima.* *Park. theatr.* 1444.

*P. folio fere non serrato.* *Park. theatr.* 1444.

*Phylca.* *Dalech.* i. 258. Fruit figured as acute and described as angular before maturity.

*Leaves* to  $2\frac{1}{2}$  inches long, to 6 tenths of an inch broad. *Calyx*, mouth obsoletely quadrifid; segments scarcely projecting beyond the commissures; margin hirsutulous. *Obs.* 7902.

✓ *oblongifolia*. *Leaves* ovali-elliptic, serrate above. *Obs.* 9067.

*P. latifolia*. *Pollin* i. 7 a

*Phylerea arbor*. *Lob. adv.* 421. *repr. in ic.* ii. 132, and

*P. arbor*. *Ger by Johns.* 1397, and *cop. in Bauh. J. i. pars.* i. 540.

*Machaleb syriacum*. *Park. theatr.* 1518, middlemost fig. and

*P. Mahaleb*. *Dalech.* i. 154. Berries represented as acute, possibly half ripe and contracted by drying.

*Leaves* to 1 inch long, to  $4\frac{1}{2}$  tenths of an inch broad. *Calyx* quadrifid; segments semiorbicular; margin hirsutulous. *Berries* globose,  $1\frac{1}{2}$  tenth of an inch long, appearing like a unilocular capsule with a dried up pulp within without any seeds. *Obs.* 9067.—*Calyx* quadrifid; segments triangular, acute, hirsutulous at the margin, unequal. *Obs.* 9069.

δ *serrata*. (Variation) *Leaves* lanceolato-elliptic, serrate. *Obs.* 4123.

*P. obliqua*. *Willd. enum.* i. 13? *Linn. a Spreng.* i. 33?

*P. Raii hist.* ii. 1586. *var.* 2. *Linn. ups.* 6. n. 2. β *Ger. Lud.* 321. n. 2. *var.* 1.

*P. folio leviter serrato*. *Magn. hort.* 159. *Boerh.* ii. 215.

*P. serrata*. *Raii eur.* 202. *Ger. by Johns.* 1396, *repr. from*

*P. II. Clus. hisp.* 61, which *repr. in hist.* i. 52, *cop. in Phillirea*. *Dalech.* i. 155, and

*P. latifolia aculeata*. *Park. theatr.* 1444 and *abr. in*

*P. folio alaterni*. *Bauh. J. i. pars* i. 541.

✓ *ovata*. *Leaves* cōtlato-ovate ovate and oval, serrate. *Obs.* 9066.

*P. latifolia*. *Linn. sp.* i. 10; a *Murr.* 57; a *Willd.* i. 43 a; a *Roem. & Schult.* i. 74; a *Spreng.* i. 33. *Vahl. enum.* i. 37. *Willd. enum.* i. 12. *Link. enum.* i. 33. *Lam. & Dec.* iii. 499; *syn.* 216. *Dec. monsp.* 181.

*Hort. kew. ed. I. i. 12; ed. II. i. 20. Schrad. germ. i. 8. Host. syn. 3; fl. i. 22. Gou. monsp. 6. Sibth. prodr. i. 4. Pollin. i. 7 β*

*P. latifolia spinosa triphyllus. Pluk. alm. 295. t. 310. f. 4.*

*Olea latifolia. Sal. R. hort. 13.*

*Leaves* to 1½ inch long, to 8 tenths of an inch broad. *Calyx* turbinate, quadrifid; segments triangular, acute, mostly unequal. *Corolla* quadripartite. *Stamina* 2, inserted into the tube of the corolla. *Pistil* as long as the stamina. *Germen* roundish, comprest. *Style* as long as the germen. *Stigma* terete, attenuate each way, erect, as long as the style.

♂ *cordifolia*. *Leaves* cordate. *Obs.* 12343. Specimen in fr. in Broughtons herbarium.

2. **PHILLYREA brachiata.** *Paniculae* axillares. *Folia* lanceolato-oblonga.—*Panicles* axillary. *Leaves* lanceolato-oblong. *Obs.* 12032. Specimen from Wright, gathered and so named by Roxburgh in India.

*Olea paniculata. Roxb. ind. i. 104? Brown, Rob. i. 523? Linn. a Roem. & Schult. i. 71; a Spreng. i. 34?*

*Olea Roxburghii. Linn. a Spreng. i. 34?*

*Glabrous. Branches* verrucose. *Leaves* opposit, entire at the margin; laminae to 9 inches long. *Petioles* 1 to 1½ inch long. *Panicles* diffuse, solitary and in pairs, opposit, to 4 inches long, pedunculate; peduncles half as long as the petioles; branches opposit. *Bractea* triangulari-ovate, opposit, horizontal. *Calyx* patellate, quadrifid; segments triangular. *Corolla* rotate, quadripartite; segments ovate, concave, with inflex margins. *Stamina* 2, very short. *Antherae* roundish. *Pistil* very short. *Germen* ovate. *Style* none. *Stigma* obtuse, subbifid.

3. **PHILLYREA paniculata.** *Paniculae* terminales. *Folia* elliptica acuminata glabra.—*Panicles* terminal. *Leaves* elliptic acuminate glabrous. *Obs.* 12031. Specimen from Wright gathered by Roxburgh in India.—*Roxb. ind. i. 100.*

*Ligustrum japonicum. Thunb. jap. 17. t. 1, is a*

good representation of it, but the calyx is described as 4 times shorter than the corolla, and the style as long as the corolla.

Glabrous. *Leaves* coriaceous to  $3\frac{1}{2}$  inches long, 2 broad. *Petioles* with indistinct glands on both sides towards the end. *Calyx* turbinate, obsoletely quadridentate. *Corolla* coriaceous, hypocrateriform; tube somewhat shorter than the calyx; limb quadripartite; segments oblongo-lanceolate, recurvate, with longitudinal veins. *Stamina* opposit, inserted at the commissures of the corolla, extended beyond the corolla. *Filaments* adherent to the tube, longer than the corolla. *Pistil* somewhat shorter than the corolla. *Germen* turbinate. *Style* filiform. *Stigma* clavate, bifid at the end.

#### 10. OLEA.

*Calyx* and *Corolla* quadrifid. *Drupe*. Nut bilocular and unilocular. *Obs.* 7992. 9074. *Brown, Rob.* i. 523. *L.—Vent. tabl.* ii. 312. *t.* 9. *f.* i; *part cop. from Gaertn.* ii. 75. *t.* 93, who shewed that it differed from *Phillyrea* only in the harder texture of the nut. I have no perfect specimen of the fruit of *Phillyrea*.

1. *OLEA lancifolia*. Racemi axillares. Folia squamosa.—Racemi axillary. Leaves squamose. *Obs.* 9074. In Renishaw garden. 26 Aug.—*Obs.* 7972. Specimen gathered by Broussonet probably near Montpellier.—*Obs.* 12035. Specimen gathered by Mr. Jos. Stokes as he believes, in India, but probably at the Cape of Good Hope.—*Obs.* 12036. Specimens gathered by Mr. Boraston in hedges and gardens in Tuscany and Gibraltar.—*Obs.* 7993. 12038. Specimens gathered in a garden.—*Moench. marb.* i. 478.  
*O. europaea*. *Bot. mat. med.* i. 16. *Linn. a Willd.* i. 44; *a Spreng.* i. 34. *Lam. & Dec.* iii. 497; *syn.* 216. *Willd. enum.* i. 13. *Vahl. enum.* i. 39. *Sibth. prodr.* i. 4. *Schrad. germ.* i. 9. *Host. syn.* 3. *Honck.* i. 72. *Bieb.* i. 5. *Scop. carn.* i. 8. *Gaertn.* ii. 75. *t.* 93. *Hort. kew. ed. II.* i. 21. *Gou. hort.* 7; *monsp.* 6. *Pall. ross.* 8vo ii. 31. *Seb. & Maur.* 4. *Pollin.* i. 6. *Thunb. cap.* 37; *prodr.* 2.

*Branche*s verrucose. *Leaves* squamose; scales peltate, orbicular, erose, with radiate lines from the center, incumbent on the under surface, distinct on the upper surface.

*a lanceolata*. *Leaves* lanceolate. *Obs.* 7992.

*O. europaea*. *Bot. mat. med.* i. 16 *a* *Lam. & Dec.* iii. 497  $\beta$

*O. sativa*. *Link. enum.* i. 38. *Linn. a Roem. & Schult.* i. 69. *Clus. hist.* i. 26, *repr. in Ger. by Johns.* 1892. *Stap.* 315.

*O. Browne*, *Patr.* 116. *Cord. fol.* 185, *repr. from Tray.* 1061.

Grafted olive. *Le Pluche del.* ii. t. 13. *atp.* 151.

*Leaves* dark green above, with minute scattered lepidies, underneath whitish glaucous, slightly shining, covered with lepidies; lepidies orbicular, peltate, radiate, crenate. *Calyx* calathine, quadridentate; teeth triangular, acute, pubescent at the end. *Corolla* rotato-hypocrateriform; tube shorter than the calyx; limb quadripartite; segments oval, recurvate; margins inflex. *Stamina* erect, just shorter than the corolla. *Pistil* longer than the calyx. *Germen* ovate, slightly comprest. *Style* thick, as short again as the germen. *Stigma* turbinate, emarginate, as long as the style. *Obs.* 9074. *Nut* unilocular and bilocular, bivalve, ligneous, brittle, very hard, obovato-oblong oblong oval and elliptico-oblong, cuspidate and rounded, terete, gibbous on the back, dull, from  $\frac{1}{4}$  to nearly 1 inch long; from 3 to  $3\frac{1}{4}$  tenths of an inch broad, whitish brown, scabrous and rugose, obsoletely furrowed below, with 2 furrows on the sides more conspicuous than the rest extending the whole length being the sutures; parietes equal to one third of the thickness of the nut, very hard, whitish brown internally. *Nuclei* obovato-lanceolate, comprest, slightly gibbous on one of the margins, olive-coloured, with oblique tawny streaks. *Tunic* reticulate, transparent; areolae angular, roundish and oblong; streaks composed of white spiral fibres disposed in longitudinal fasciculi. *Perisperm* ovato-lanceolate, fleshy, rufescenti-fulvous, granular; granules large. *Corculum* feruliform, embedded in the perisperm, nearly as long as the perisperm, comprest, rufescenti-fulvous, grau-

lar; granules minute. *Cotyledons* 2, flat, lanceolate-ovate, rounded at the end, 4 times longer than the rostellum; a colourless transparent membrane observed on separating the cotyledons, destructible by pressure between glasses. *Rostellum* straight, linear, rounded at the end; granules disposed in lines. *Obs.* 7992. Drupae from the shops.

β *ferruginea*. Leaves lanceolate, ferruginous underneath. *Obs.* 7993. *Hort. kew.* δ *Bot. mat. med.* ι

γ *buxifolia*. Leaves oval and ovate. *Obs.* 12037. 12038. *Hort. kew.* ζ *Bot. mat. med.* η

2. *OLEA fragrans*. Flores umbellati fasciculatique. Folia elliptica, acuminata, superne serrato-denticulata integerrimaque — Flowers umbellate and fasciculate. Leaves elliptic, acuminate, serrato-denticulate above and entire at the margin. *Obs.* 3994. In Wingerworth garden.—*Willd. enum.* i. 13. *Vahl. enum.* i. 43. *Thunb. jap.* 18. t. 2. *Linn. a Murr.* 57; a *Willd.* i. 46; a *Roem. & Schult.* i. 71; a *Spreng.* i. 34. *Hort. kew. ed. I.* i. 14; *ed. II.* i. 22. *Roxb. ind.* i. 104.

*Branches* comprest, resembling in habit those of *Fraxinus excelsior*. *Leaves* shining, purplish underneath, some serrate others entire at the margin in the same plant, coriaceous, rigid; serratures spinose at the end. *Flowers* corymbose and umbellate, fragrant, somewhat resembling the odour of *Lupinus luteus*. *Peduncles* axillary, near the ends of the branches, sometimes with flowers in an umbel at the end and a few pedicles in a verticillus about half way above the base of the peduncle. *Pedicles* in pairs solitary and crowded. *Bracteae* 2, opposit. *Calyx* turbinate, quadrid; segments ovato-triangular, acute and subobtus, arose, adprest. *Corolla* rotate, at first white then whitish, at length creamcoloured, after florescence brown, fleshy; limb quadripartite; segments oblong. *Stamina* 2 and 3, inserted into the tube of the corolla. *Antherae* ovate, acute. *Nectarium?* or *rudiments of stamina?* tetraphyllous and hexaphyllous; phylla ovate, acuminate, erect, greenish, surrounding the germen, the outer opposit. *Germen* oval, minute, probably imperfect.



3. *OLEA laevis*. Paniculae axillares. Folia lanceolato-elliptica, acuminata, obtusiuscula, laevia. Stigma indivisum.—Panicles axillary. Leaves lanceolato-elliptic, acuminate, rather obtuse, levigate. Stigma undivided. *Obs.* 12034. Specimen from Wright, gathered by Roxburgh in India, and called a new species.

*Branches* grey, verrucose. *Leaves* opposit; veins underneath lineate, slightly prominent on the upper surface. *Panicles* thrice as long as the petioles. *Calyx* turbinate, semiquadrifid, pubescent; segments triangulari-ovate, acute. *Germen* pyramidal. *Style* pyramidal. *Stigma* oval.

4. *OLEA undulata*. Paniculae terminales. Folia oblongo-elliptica, margine undulata.—Panicles terminal. Leaves oblongo-elliptic. *Obs.* 12033. Specimen gathered in Upton garden.—*Willd. enum.* i. 13. *Linn. a Spreng.* i. 34. *Link. enum.* i. 33.

*O. undata*. *Moench. marb.* ii. 181.

*O. capensis*  $\beta$  *Linn. a Willd.* i. 45; *a Roem. & Schult.* i. 70; *Vahl. enum.* i. 41. *Hort. kew. ed. I.* i. 13; *ed. II.* i. 21.

Glabrous. *Leaves* cuspidate; margin inflex. *Panicles* in threes; branches opposit, patent. *Flowers* subsessile. *Calyx* cyathino-calathine, semiquadrifid, scabrous with minute tubercles; segments triangular. *Corolla* rotate,  $1\frac{1}{2}$  as long as the calyx; segments ovate, reflex. *Stamina* extending beyond the corolla. *Pistil* just shorter than the corolla. *Germen* ovate, rugose. *Style* as long as the germen. *Stigma* oval.

## 11. CHIONANTHUS.

*Calyx* quadrifid. *Corolla* quadrifid; segments linear, many times longer than the calyx. *Drupe*. *Nut* monospermous, striate. *Obs.* 8449. The account of the fruit from *Gaertn.* i. 189. *t.* 39. *L. a Roem. & Schult.* i. 51. *L.*

1. *CHIONANTHUS triflora*. Flores terminales axillaresque; pedunculis axillaribus paniculaeque ramis plerumque trifloris.—Flowers terminal and axil-

lary; the axillary peduncles and branches of the panicle mostly triflorous. *Obs.* 8449. *Bot. mat. med.* i. 19.  
*C. virginica.* *Linn. a Willd.* i. 46; *a Roem. & Schult.* i. 72; *a Spreng.* i. 34. *Willd. enum.* i. 14. *Link. enum.* i. 34. *Vahl. enum.* i. 44. *Michaux* i. 3. *Pursh.* i. 7.  $\beta$  *Nutt.* i. 5. *Duroi obs.* 7. *Hort. kew. ed. II.* i. 23.

*C. trifida.* *Moench. marb.* i. 478.

*C. Clayt. a Gron. ed. I.* 10; *ed. II.* 1.

*Shoots* pubescent. *Leaves* oval ovali-elliptic and lanceolate, glabrous on the upper surface, pubescentulous underneath. *Bractea*e lanceolate and linear-lanceolate, opposit, at the base of the branches of the panicle. *Calyx* quadriparte and quinquepartite; segments ensate. *Corolla* quadripartite and quinquepartite, octonervose. *Stamina* 2, inserted into the base of the corolla. *Germen* ovate. *Style* very short. *Stigma* simple.

## 12. LINOCERA.

*Drupe* bilocular; cells monospermous. *Calyx* quadrifid. *Petals* 4. *Antherae* 2 and 3. *Obs.* 8451, and from *Swartz. occid.* i. 49. *t.* 2, and *Gaertn. C.* iii. 192. *t.* 215. *Linn. a Roem. & Schult.* i. 59.  
*Ceranthus.* *Linn. a Schreb.* ii. 14.

1. *LINOCERA compacta.* Racemi compound and decompound. Pedicles triflorous. Flowers sessile. Petals attenuato-subulate. *Linn. a Roem. & Schult.* i. 266.

*Chionanthus compacta.* *Swartz. prodr.* 13. *Vahl. enum.* i. 44. *Hort. kew. ed. II.* i. 23.

*Chionanthus caribaea.* *Swartz. occid.* i. 22.

*Leaves* elliptic, acuminate, coriaceous, glabrous. *Panicle* pubescent. *Calyx* pubescent. *Petals* costate, ovate below, subulate above, to  $1\frac{1}{2}$  tenth of an inch long. *Stamina* 3. *Antherae* cuspidate, bilocular; cells distinct, nearly 4 times shorter than the petals. *Obs.* 8451. Specimen from Wright, gathered in Guiana.

## 13. SYRINGA.

*Calyx* and *corolla* quadrifid. *Capsule* bilocular; cells dispermous. *Obs.* 2936. *L.—Gaertn.* i. 224. *t.* 49, *cop. in*

Lilac. *Vent. tabl.* iv. 100. *t.* 8. *f.* 6, with flowers added.—*Juss.* 105.

1. *SYRINGA persica*. Leaves ovato-lanceolate ovato-elliptic and elliptic, deeply trilobate and pinnatifid. Capsules linear. *Obs.* 2819. In a garden.—*Obs.* 1767. In a garden close to the pool in Old Swinford in Worcestershire.—*Obs.* 10843. In fr. in Clifton garden.—*Linn. sp.* i. 11; *a Willd.* i. 48; *a Roem. & Schult.* i. 77; *a Spreng.* i. 36. *Schult. obs.* 1. *Willd. enum.* i. 14. *Vahl. enum.* i. 38. 358. *Hort. kew. ed. I.* i. 15; *ed. II.* i. 24.

*S. babylonica*. *Pluk. alm.* 359; *phyt.* 227. *f.* 8.

Lilac *persica*. *Lam. & Dec.* iii. 495; *syn.* 215.

Lilac *minor*. *Moench. marb.* i. 431.

Lilac. *Vent. tabl.* iv. *t.* 8. *f.* 6. A-C.

*S. ligustri folio*. *Rupp. ab Hall.* 24.

*S. foliis lanceolatis*. *Hall. gott.* 233.

- a purpurascens*. (Variation) All the leaves elliptic: Corolla whitish pink. *Obs.* 2819.

*S. persica*. *Bot. mug.* t. 486.

*S. Linn. ups.* 6. n. 2.

Lilac folio *ligustri*. *Boerh.* ii. 221.

*Leaves* thin; laminae to  $1\frac{1}{4}$  and  $1\frac{1}{2}$  inch long. *Panicles* glabrous, 3 inches long. *Corolla* to nearly 6 tenths of an inch long; segments ovali-elliptic, concave, with erect margins. *Germen* superior, ovate. *Style* filiform, green at the base, red above. *Stigma* cuneate, flat, bifid, strawcoloured; vasa deferentia 2, dusky, one beginning near the end of each segment of the stigma.

- β albida*. (Variation) Corolla purplish white. *Obs.* 6307. *Hort. kew.* *β*

- γ laciniata*. Leaves entire trilobate and deeply pinnatifid. *Obs.* 1767.

*S. persica*. *Linn. sp.* i. 12 *β* *Vahl. enum.* i. 38 *β* *Park. theatr.* 1467. *Raii hist.* ii. 1763.

*S. laciniata*. *Mill. Ph. dict.* n. 3. *Linn. ups.* 6. n. 3.

*S. laciniato folio*. *Rupp. ab Hall.* 24.

Lilac *laciniato folio*. *Boerh.* ii. 221.

Lilac *laciniatis foliis*. *Park. parad.* 408.

*Leaves*, simple leaves and terminal folioles elliptic.

*Capsule* linear, quadrangular, 4 tenths of an inch long, 1 broad, rufescenti-atrous, obtuse, obsoletely cuspidate. *Obs.* 10843. 1767.

♂ *ovata*. Leaves elliptico-ovate and ovato-elliptic. *Obs.* 11458.

*S. chinensis*. *Linn. a Willd.* i. 48; *a Roem. & Schult.* i. 76; *a Spreng.* i. 36. *Willd. enum.* i. 14. *Hort. kew. ed. II.* i. 24. *Vahl. enum.* i. 38.

*Stem* fruticose, 5 feet long; branches similar to those of *a* *Leaves* thin, laminae to 2½ inches long, to 1 inch 1 tenth broad. *Panicle* glabrous, to 3 inches long. *Corolla* bluish purple and purplish pink, 5 to 6½ tenths of an inch long; segments oval, concave, with erect margins, just shorter than the tube.

2. *SYRINGA cordifolia*. *Folia* cordata ovataque. *Capsulae* lanceolatae.—Leaves cordate and ovate. *Capsules* lanceolate. *Obs.* 2936.

*S. vulgaris*. *Bot. mat. med.* i. 20. *Linn. a Murr.* 57; *a Willd.* i. 48; *a Roem. & Schult.* i. 76; *a Spreng.* i. 36; *hal.* 5. *Willd. ber.* 7; *enum.* i. 14. *Vahl. enum.* i. 38. *Hort. kew. ed. II.* i. 23. *Krock.* i. 6. *Schrad. germ.* i. 10. *Roth. germ.* i. 4; ii. *pars.* i. 4. *Host. syn.* 4. *Thuill.* 5. *Reich.* i. 4. *Gaertn.* i. 224. *t.* 49, *cop. in Vent. tabl.* iv. *t.* 8. *f.* 6. *D—I.*

*Lilac vulgaris*. *Moench. marb.* i. 431. *Lam. & Dec.* iii. 495; *syn.* 215. On Mount Uzor in Forez.

*S. foliis ovato-cordatis*. *Hall. gott.* 233; *hist.* i. 230. *Linn. ups.* 6.

*a caerulescens* (Variation) *Corolla* purplish blue. *Obs.* 2936. 10840. In a garden at Glapwell in Derbyshire. 24 May.—*Hort. kew.* β

*S. flore caeruleo*. *Rupp. ab Hall.* 24.

*Καλοβοτρυχis*. *Ren.* 31. *t.* 30.

*S. caeruleo flore*. *Dalech.* i. 355, in fl. and fr.

*Lilac*. *Vaill. paris.* 116. *Boerh.* ii. 221. *n.* 1. *Park. parad.* 407. *t.* 409. *f.* 4. *Dod.* 766, *cop. in Park. theatr.* 1467, and *repr. in*

*S. caeruleo flore*. *Clus. hist.* i. 56,

*S. caerulea*. *Lob. obs.* 540; *ic.* ii. 101, and *Ger. by Johns.* 1399. *Raii hist.* ii. 1763.

β *purpurascens*. (Variation) Corolla whitish bluish pink. *Obs.* 10841. In a garden. 24 May. 7 June. Lilac flore saturate purpureo. *Vaill. paris.* 116. *Boerh.* ii. 221.

*Leaves*, floral leaves cordate and ovato-cordate, blackish green. *Corolla* to 5 and  $5\frac{1}{2}$  tenths of an inch long; segments oval, slightly sacculate, patulous and patent. *Pollen* strawcolourd. *Style* obfusiform, whitish. *Stigma* cuneate, bifid, whitish; segments patulous, acute; polleniferous ducts 2, grey, one beginning near the end of each segment of the stigma. *Obs.* 10841. *Capsule* bilocular, elliptico-lanceolate and oblong acuminate, comprest; cells dispermous; dissepiment contrary to the valves. *Seeds* not perfect, oblong, flat, borderd; border somewhat membranaceous. *Corculum* flat, parallel to the sides of the seed, straight, surrounded by a perisperm. *Obs.* 2936.

γ *alba*. (Variation) Corolla white. *Obs.* 10842. In a garden.

*S. major*, flore albo. *Rupp. ab Hall.* 24.

Lilac flore albo. *Vaill. paris.* 116. *Boerh.* ii. 221.

*Stem* arborescent, to 20 feet long. *Leaves* ovate and cordato-ovate, whitish green; floral leaves ovate. *Panicle* pubescent; hairs globiferous, very short. *Corolla* 4 and  $4\frac{1}{2}$  tenths of an inch long; segments patulo-horizontal, oval, sacculate. *Obs.* 2936. The taller kinds with larger and thicker leaves have the smaller corollae.

#### 14. CATALPA.

*Capsule* bilocular; dissepiment contrary. *Seeds* with membranaceous wings. *Corolla* bilabiate. *Calyx* bipartite. *Obs.* 10705. The account of the capsule from *Juss.* 138. *Moench. marb.* i. 464. *Walt.* 64.

Differs from *Bignonia* in the calyx and dissepiment.

1. *CATALPA cordifolia*. Folia cordata ovataque. Leaves cordate and ovate. *Obs.* 10705. Specimen gatherd by Mrs. Lupton near New York.—*Obs.* 12408. From Rempston Garden. 27 Aug.—*Obs.* 10072. Seeds

gathered by Dr. Skey in Barbadoes.—*Moench. marb.* i. 464. *Nutt.* i. 10. *Bart. phil.* i. 9.

*C. syringifolia.* *Hort. kew. ed. II.* i. 24. *Pursh.* i. 10.

*C. bignonioides.* *Walt.* 64.

*Bignonia catalpa.* *Bot. mat. med.* iii. 396. *Linn. a Willd.* iii. 289. *Willd. enum.* ii. 649. *Mill. Ph. dict. n. 2.* *Michaux* ii. 25. *Burm. N. ind.* 131.

*Ramuli* trigonous. *Leaves* in threes, caudato-acuminate, entire at the margin, glabrous on the face, pubescentulous at the margin and the veins of the back. *Petioles* terete, longer and shorter than the laminae. *Panicle* terminal, with dichotomous branches. *Bracteae* lanceolato-linear and ensate, recurvate, solitary, near the base and about the middle of the branches of the panicle. *Calyx* sometimes trifid, purplish; segments concave, subrotundo-elliptic, cuspidate. *Corolla* resembling that of *Aesculus Castanea*, white, nearly an inch long, 4 times as long as the calyx; tube dilated, with brownish red minute spots and lines and 2 clavate yellow streaks terminating near the commissures of the lower lip; limb crispate; segments roundish, nearly equal; upper lip bifid; lower lip deeply trifid. *Stamina* inserted at the base of the tube opposit to the lower lip, somewhat longer than the tube. *Filaments* white, subulate. *Antherae* bilocular, fulvous; cells fixt end to end, straight and divaricate. *Pollen* white, globose, rugose, when moistened subtrigonous. *Rudiments of stamina* 3, 2 and 1, at the base of the tube opposit to the upper lip, 4 times shorter than the perfect stamina. *Filaments* filiform. *Antherae* lanceolate, somewhat broader than the filaments. In one flower 1 stamen with 2 half as long, each bearing a unilocular anthera, and a 3rd minute rudiment. *Pistil* as long as the stamina. *Germen* ovate, attenuate. *Style* filiform, white. *Stigma* bilamellate, as broad as the style; lobes lanceolate. *Vasa deferentia* 4. *Seeds* winged, flat, transversely oblongo-lanceolate, shining, 2 tenths of an inch long, 1 inch broad; body transversely reniformi-oval, olive-coloured, undulate; wings membranaceous, transparent, reticulate, white; meshes linear. *Tunic* semitranspa-

rent, brownish olivecoloured. *Indusium* rufescentifuscous, semitransparent, obsoletely reticulate, the meshes appearing as solid and the reticulate work transparent. *Corculum* flat, transversely panduriform, the lower sinus filled by the rostellum, blackish rufous, granular; granules rather large. *Cotyledons* flat, transversely panduriform, adpressed; sinuses linear, equal. *Rostellum* linear, acute at the end, filling up the lower sinus; granules disposed in lines.

### 15. FRAXINUS.

*Calyx* quadrifid and none. *Corolla* tetrapetalous and none. *Samara* monospermous. *Obs.* 10375. *Schrud. germ.* i. 11. *Gaertn.* i. 222. *t.* 49. *L.*

1. **FRAXINUS excelsior.** Flores nudi, trioeci. Folia pinnata ternata simpliciaque, foliolis serratis plerumque sessilibus. Samarae spatulatae lanceolataeque.—Flowers naked, trioecious. Leaves pinnate ternate and simple; folioles serrate, mostly sessile. Samarae spatulate and lanceolate. *Obs.* 10375. In hedges Apr. 22.—*Bot. mat. med.* i. 21. *Pers. ench.* ii. 605. *Schrud. germ.* i. 12. *Linn. a Willd.* iv. 1099; *a Roem. & Schult.* i. 280; *a Spreng.* i. 97; *hal.* 12. *Moench. marb.* i. 367; ii. 4. *Gaertn.* i. 222. *t.* 49. *Poll.* ii. 664. *Roth. germ.* i. 435; ii. *pars.* ii. 559; *enum.* i. 27. *Bieb.* ii. 450. *Wahl. ups.* 340; *helv.* 189; *suec.* ii. 665. *Pall. ross.* 8vo ii. 10. *Seb. & Maur.* 336. *Turn. S.* 57. *Honck.* i. 68. *Asso* 147. *Lam. & Dec.* iii. 496; *syn.* 216. *Link. enum.* ii. 451; *in tracts* 28. *Thuill.* 541. *Smith. engl.* i. 14. *Pollin.* iii. 233. *Willd. enum.* ii. 1059. *Vahl. enum.* i. 58. *Hook. scot.* i. 3. *Host. syn.* 547; *fl.* i. 31.

*F. excelsa.* *Sul. R. hort.* 14. *Thunb. jap.* 23.

*F. Ornus.* *Scop. carn.* ii. 281.

*F. Hall. hist.* i. 228. *Blackw. t.* 328. *Lob. obs.* 545, *repr. in Ger. by Johns.* 1472.

*F. communis.* *Stap.* 185.

*Ornus.* *Michel. gen.* 223. *t.* 103.

*Leaves* rather coriaceous; folioles lanceolate and elliptic, acute and slightly acuminate, the lower somewhat smaller; costae and veins mostly pubescentulous.

*Hermaphrodite flowers* paniculate. *Bracteae* olivaceous, tomentose, the lower spatulate, the uppermost setaceo-ensiform and lacinate at the end; hairs flexuose, matted. *Stamina* 2, 3 and 1, when 2 opposit, at the base of and on the flat sides of the germen, sometimes appearing like glandular nectaria but containing pollen. *Antherae* cordate, blackish purple, bilocular, tuberculate. *Pollen* globose, strawcoloured. *Pistil* twice as long as the antherae, purple. *Germen* ovate, comprest, twice as long as the antherae. *Style* filiform, with 2 vasa deferentia. *Stigma* terete, acute and bifid at the end. *Male flowers* on a different tree, paniculate. *Branches of the panicle* opposit. *Bracteae* at the base of the ramifications, villose, the lower opposit, oblong and linear, the lowermost oblong, villose underneath and near the margin on the inside, the linear bracteae with a tuft of villi at the end; villi fulvous, interwoven. *Stamina* 2, sometimes 1. *Antherae* ovate, blackish purple, thrice as long as the filaments. *Pollen* sulphureo-stramineous, roundish. *Samara* unilocular, monospermous, mostly spatulate, emarginate and obliquely emarginate; *columella* filiform, as long as the cell. *Seeds* 4, rufous; one perfect, lanceolate, comprest, rugose, dull, pedunculate; surface viewd in the microsoope with shining transversely oval foveolae; abortiv seeds 3, minute, sessile. *Perisperm* whitish, surrounding the corculum, granular; granules almost obliterated by pressure between glasses. *Corculum* flat, straight, white, as if prest between two layers of perisperm, not granular, 1 third shorter than the perisperm. *Cotyledons* lanceolate, flat, costate, with lateral veins. *Rostellum* terete and rather acute below, comprest above, as long as the cotyledons.

*Nat.* of Europe as far north as Sweden, of Crimea, the temperate parts of Russia, Boutan and Japan, but not in Siberia and North America.

β *diversifolia*. (Variation) Leaves simple and ternate.

*Bot. mat. med.* γ *Lam. & Dec.* β

*F. heterophylla*. *Vahl. enum.* i. 53. *Smith engl.* i. 14.

*Linna, a Roem. & Schult.* i. 281; *a Spreng.* i. 97.

*Link. enum.* ii. 451.



7 *simplicifolia*. (Variation) Leaves simple. *Bot. mat. med.* δ

*F. simplicifolia*. *Linn. a Willd.* iv. 1098. *Willd. enum.* ii. 1059.

2. **FRAXINUS** *Ornus*. Petala lanceolato-linear. Calyx quadripartitus; laciniis ensatis.—Petals lanceolato-linear. Calyx quadripartite; segments ensate. *Obs.* 12051. Specimen gathered by Mr. Baker in the south of Tirol.—*Bot. mat. med.* i. 23. *Linn. a Willd.* iv. 1104; *a Roem. & Schult.* i. 277; *a Spreng.* i. 95. *Willd. enum.* ii. 1060. *Schrad. germ.* i. 11. *Vahl. enum.* i. 48. *Sibth. prodr.* i. 5. *Hort. kew. ed. II.* v. 477. *Pollin.* iii. 234. *Rupp. ab Hall.* 334. *Host. fl.* i. 30. *Gou. monsp.* 471. *Honck.* i. 70. *Krock.* iii. 373. *Cirillo in ph. tr. abr. by Hutt.* xiii. 46. *Thuill.* 541. In two woods near Paris.

*F. florifera*. *Lam. & Dec.* iii. 496; *syn.* 216.

*Ornus europaea*. *Pers. ench.* i. 9. *Link. enum.* ii. 451. *Seb. & Maur.* 4. Flowers whitish.

*F. Ger. Lud.* 320. n. 2. *Michel. gen.* 225. t. 107.

*F. florifera botryoides*. *Mor. prael.* 265. *Raii hist.* iii. 1704. *Lond. gard.* 33. t. 9. *Tourn. inst.* 577. Between Pisa and Florence.

*F. americana florida*. *Magn. hort.* 81.

*Folioles* serrate and serrulate, oblongo-elliptic, acuminate, thinnish and very thin, tomentose near the costa underneath; terminal foliole sometimes rhombelloid, somewhat shorter than the rest; lateral folioles unequal at the base, somewhat smaller upwards; upper pair sometimes sessile; tomentum tawny. *Calyx* cyathine, tawny yellow; segments unequal, irregularly dentate. *Petals* trinervose below, rounded at the end, 6 times longer than the calyx. *Stamina* 2. *Filaments* shorter than the calyx. *Antherae* oblong, twice as long as the calyx. *Pistil* as long as the stamina. *Style* filiform. *Stigma* turbinato-globose.

*Nat.* of Greece Italy Carniola Tirol Croatia Tomeswar Dalmatia Litorali Istria the south of France and in two woods near Paris.

3. **FRAXINUS** *floribunda*. Petals elliptic. Calyx quadridentate. *Obs.* 11405. Specimen with male

flowers from Smith, from Nepaul in India.—*Wall. in Roxb. ind.* i. 150. *Linn. a Spreng.* i. 95.

*Folioles* ovato-elliptic, acuminate and caudato-acuminate, unequally serrate, all petiolate. *Panicles* crowded. *Calyx* calathine, tawny; teeth very obtusely angled. *Petals* 4, costate,  $2\frac{1}{2}$  and thrice as long as the calyx, tawny yellow, nearly a tenth of an inch long. *Stamina* 2. *Antherae* oblong, emarginate at the base, as long as the petals.

### 16. BOERHAVIA.

*Calyx* inferus, tubulatus. *Corolla* turbinata, calycis ori inserta. *Stamina* monadelphica. *Semen* 1, calyce indurato vestitum.—*Calyx* inferior, tubulate. *Corolla* turbinata, inserted into the mouth of the calyx. *Stamina* monadelphous. *Seed* 1, within the indurated calyx. *Obs.* 10753. *Brown, Rob.* i. 422. *Vent. tabl.* iv. t. 7. f. 6, the fr. cop. from *Gaertn.* ii. 208. t. 127. *Juss.* 91. *Linn. a Schreb.* 7; *a Spreng.* i. 24. *L.*

1. *BOERHAVIA scandens*. *Stamina* 2. *Calyx* fructusque apice tuberculati. *Flores* umbellati verticillatique. *Folia* ovata cordataque.—*Stamina* 2. *Calyx* and fruit tuberculate at the end. *Flowers* umbellate and verticillate. *Leaves* ovate and cordate. *Obs.* 8513. Specimen gathered by Broughton in Jamaica.—*Swartz. obs.* 12. *Gou. hort.* 1. *Gaertn.* ii. 208. t. 127. *Linn. sp.* i. 4; ii. 1676; *mant.* 315; *a Murr.* 52; *a Willd.* i. 21; *a Rœm. and Schult.* i. 66; *a Spreng.* i. 37. *Vahl. enum.* i. 289. *Willd. phyt.* 1; *enum.* i. 49. *Moench. marb.* ii. 196. *Mill. ph. dict. n.* 3. *Jacq. hort.* i. 2. t. 4. *Hort. kew. ed. I.* i. 4; *ed. II.* i. 11.

*B. Browne, Patr.* 123. n. 2.

*Valerianella alsines folio.* *Sloane cat.* 91.

*Solanum bacciferum.* *Pluk. alm.* 349. t. 226. f. 7.

(*B. erecta.* *Burm. N. ind.* 3. t. 1. f. 2, is *B. glutinosa.*)

*Branches* terete, glabrous, whitish green. *Leaves* acute emarginate and retuse, glabrous. *Peduncles* terminal and axillary, bearing an umbel or an umbel with a verticillus a little below it. *Umbels* and *verticilli* with from 3 to 8 flowers. *Pedicles* with lanceolate whitish

lines resembling strigae. *Calyx* oblongo-turbinate, decemlineate on the outside, when viewed by transmitted light the inner side next the eye multilinate, microscopically spotted; tubercles round the end of the calyx just below the insertion of the corolla, 10, in a circle, pointing upwards and downwards, 3 scattered a little below them and above the middle; spots lineari-oblong, whitish, crowded. *Corolla* infundibulate, spotted,  $1\frac{1}{2}$  as long as the calyx; tube very short; limb turbinate, plicate, quinquedentate, quinquenervose, with lateral veins; spots similar to those of the calyx, opaque, less crowded than those of the calyx. *Stamina* 2, monadelphous. *United filament* enveloping the pistil, the *loose filaments* subulate, opposit, erect; sinuses irregularly crenate. *Pistil* oblong. *Style* filiform.

2. **BOERHAVIA hirsuta.** *Calyx* clavatus, hispidulus; pilis globiferis. Rami petiolique pubescentes.—*Calyx* clavate, hispidulous; hairs globiferous. Branches and petioles pubescent. *Obs.* 10760. Specimen gathered in a garden.—*Obs.* 8511. Specimen without fructifications gathered in Upton garden.—*Obs.* 8512. Specimen from Dr. Heise.—*Linn. mant.* 170; *a Murr.* 25; *a Willd.* i. 20. *Willd. phyt.* 1; *enum.* i. 49; *a Roem. & Schult.* i. 65; *a Spreng.* i. 36. *Swartz. obs.* 11. *Vahl. enum.* i. 286. *Jacq. hort. t.* 7. *Mill. Ph. dict. n.* 1.

*B. erecta.* *Gaertn.* ii. 209. *t.* 127. (*Burm. N. ind.* 3. *t.* 1. *f.* 2 has truncate fruit.)

*B. coccinea.* *Mill. Ph. dict. n.* 4, who says the petals fall off in half a day.

*Valerianella corassavica*, semine aspero viscoso. *Herm. parad.* 237. *t.*

(*B. diandra.* *Linn. sp.* i. 4, is described as having truncate fruit.)

*Hairs* articulated; internodia very short. *Leaves* ovate, cuspidate, repandose, with scattered tubercles; veins green, beautifully reticulate and dichotomous; margin roughish. *Umbels* pedunculate, axillary. *Peduncles* filiform, longer than the petioles. *Fruit*

clavate, tetragonal, sulcate, hispidulous, olivaceous,  $1\frac{1}{4}$ rd of the tenth of an inch long; sides with short white lines resembling strigae; hairs very short. *Obs.* 8512.—*Leaves* elliptic, cuspidate. *Germen* obovato-turbinate; hairs crowded, glutinous. *Corolla* globose, not yet expanded, separable into 5 segments. *Stamen* 1. *Anthera* of reticular texture. *Stigma* peltate, deflex at the margin. *Obs.* 10760.—*Stem* hirsutulous; internodia glabrous in the middle; hairs articulated. *Leaves* elliptico-ovate and ovate, acute, repandose. *Obs.* 8511. Possibly a distinct species.

3. **BOERHAVIA** *erecta*. Fructus obpyramidalis, truncatus, pentagonus, glaber. Folia scabra tuberculis minimis.—Fruit obpyramidal, truncate, pentagonal, glabrous. Leaves scabrous with minute tubercles. *Obs.* 8509. 8510.—*Bot. mat. med.* i. 25. *Linn. a Willd.* i. 19; *a Roem. & Schult.* i. 63; *a Spreng.* i. 36. *Willd. enum.* i. 49. *Hort. kew. ed. II.* i. 11. *Pursh.* i. 31. *Schult. obs.* 1. *Mill. Ph. dict. n.* 1. (*Burm. N. ind.* 3. t. 1. f. 2 is described by Roxb. as having glanduliferous capsules.)

*Stem* angular, glabrous. *Leaves* ovate, repandose, opposit, one of each pair smaller; tubercles in some plants of the same colour with the rest of the leaf, in others purplish rufous, sessile, oval and orbicular, unequal, apparently resinous. *Peduncles* filiform, lateral, between the petioles. *Bracteae* ensate, 2 together. *Calyx* inferior, turbinato-clavate. *Corolla* unexpanded, oval, somewhat larger than the calyx, inserted into the mouth of the calyx, separable into 4 segments; carina of each segment rufous. *Stamina* 2, monadelphous. *United filament* irregularly dentate; *loose filaments* filiform. *Antherae* roundish, bilocular. *Pollen* orangecoloured, twice as large as that of *Primula elatior rubra*. *Germen* oblong, pedunculate. *Style* filiform. *Stigma* peltate; margin deflex. *Fruit*  $1\frac{1}{4}$  tenth of an inch long, tawny olive, sulcate, obtuse at the end with 5 rounded patulous prominences, when steep in warm water truncate, closed at the end; angles nodose.

## 17. CIRCAEA.

*Calyx* superus, hypocrateriformis, limbo bilobo. *Petala* 2, calyci inserta. *Capsula* bilocularis; loculis monospermis.—*Calyx* superior, hypocraterine; limb bilobate. *Petals* 2, inserted into the calyx. *Capsule* bilocular; cells monospermous. *Obs.* 7842. *Bot. mat. med.* i. 26. *Juss.* 319. *Gaertn.* i. 114. t. 24. *L.*

*Calyx* deciduous with adherent corolla stamina and style as in *Epilobium*.

1. *CIRCAEA ovatifolia*. *Folia superiora ovata*.—Upper leaves ovate. *Bot. mat. med.* i. 26.

*C. lutetiana*. *Linn. a Willd.* i. 53; *a Roem. & Schult.* i. 270; *a Spreng.* i. 89; *hal.* 12. *Schrad. germ.* i. 13. *Willd. ber.* 8; *enum.* i. 14. *Vahl. enum.* i. 301. *Hook. scot.* i. 4. *Lightf.* i. 80. *Smith engl.* i. 15. *Scop. carn.* i. 8. *Retz. scand.* 5; *obs.* i. 9. *Poll.* i. 6. *Lam. & Dec.* iv. 417; *syn.* 327. *Gou. hort.* 9; *monsp.* 110. *Bieb.* i. 6. 413; iii. 8. *Gaertn.* i. 114. f. 24. *Michaux.* i. 17. *Pursh.* i. 21. *Krock.* i. 7. *Sibth. prodr.* i. 5; ii. 355. *Pollin.* i. 32. *Host. fl.* i. 30; *syn.* 4. *Wahl. carp.* 3; *helv.* 7; *succ.* i. 4. *Roth. germ.* i. 12; ii. *pars.* i. 34; *enum.* i. 84. *Grev.* 2 *a Honck.* i. 165. *Kunth. ber.* 3. *Huds.* 10. *Jacq. vind.* 6. *Lob. obs.* 137, *repr. in ic.* i. 266. *Bluff & Fing.* i. 39. *Schlect. ber.* i. 17. *Bart. phil.* i. 16. *Big.* 11. *Gmel. C. bad.* i. 15.

*C. vulgaris*. *Moench. marb.* i. 279.

*C. Hall. hist.* i. 362. n. 813. *Dalech.* ii. 1338.

Pubescent. *Stem* erect, to 2 feet long. *Leaves* ovate and cordato-ovate, dull. *Germen* oval, hispid, somewhat more than  $\frac{1}{4}$  tenth of an inch long, bilocular; cells monospermous. *Petals* obreniform, flesh-coloured, septemnervose; lobes obovate, a tenth of an inch long, broader than those of *C. cordifolia*. *Antherae* oval, white. *Pollen* triquetrous, white. *Style* filiform, subincrassate, pink. *Stigma* bilobate, pink. *Capsules* stil green obovate, subcomprest, bilocular, somewhat more than the tenth of an inch long. *Obs.* 1001.

2. *CIRCAEA cordifolia*. *Folia superiora cordata*.—Upper leaves cordate. *Bot. mat. med.* i. 26.

- C. alpina*. *Linn. a Reich.* i. 23; *a Willd.* i. 53, both of whom have omitted Linnaeus's observations; *a Gmel.* ii. 27, where for *pilidis* read *nitidis*; *a Roem. & Schult.* i. 271. *Vahl.enum.* i. 301. *Schrad. germ.* i. 14. *Retz. scand.* 5; *obs.* i. 9. *Wahl. lapp.* 3; *ups.* 2; *carp.* 4; *helv.* 7; *suec.* i. 5. *Lam. & Dec.* iv. 417; *syn.* 327. *Schult. obs.* 2. *Scop. carn.* i. 9. *Host. fl.* i. 30; *syn.* 4. *Honck.* i. 168. *Roth.enum.* i. 84; *germ.* i. 13; ii. *pars.* i. 34. Flowers mostly barren, falling off together with the pedicles after flowering.—*Gmel. C. bad.* i. 16, uppermost flowers barren.—*Brandt* i. 9. *Hook. scot.* i. 4. *Smith. engl.* i. 16. *Mull.* 4. *Reich.* ii. 164. *Eschenb. obs.* 5. *Hagenb.* i. 5. *Michaux* i. 17. *Dierb.* i. 5. *Schlect. ber.* 1. 17. *Big.* 11. *Pursh.* i. 21. *Nutt.* i. 18, is said not well to agree with the European plant.
- C. minima*. *Linn. mant.* 316. *Hall. gott.* 185. *Rupp. ab Hall.* 55.
- C. intermedia*. *Honck.* i. 168. *Moench. barb.* i. 279, but the capsule described as glabrous.
- C. lutetiana*. *Grev.* 2.  $\beta$  *Linn. a Spreng.* i. 89, var. *alpina*.
- C. Hall. hist.* i. 362. n. 814.
- Pubescentulous; hairs incurvate. *Leaves* cordate, denticulate, dull, decussate; floral leaves cordate and ovate. *Racemi* terminal and axillary, pubescent; hairs filiform, rounded at the end, horizontal. *Bracteae* setaceous, solitary, adpressed, somewhat longer than the breadth of the pedicles. *Calyx* hypocraterine; limb bilabiate; segments ovate, obtuse, opposit, deflex. *Petals* obcordate, bilobate to the middle, white and pinkish, inserted at the commissures of the calyx, just shorter than the segments of the calyx, 2 thirds of the tenth of an inch long; lobes obovato-oblong, patulous. *Nectarium* turbinate, lining the tube of the calyx, surrounding the base of the style. *Stamina* inserted at the base of the segments of the calyx, patulous, somewhat longer than the petals. *Filaments* filiform. *Antherae* oval, emarginate at the base, white. *Pollen* globose, discoverable by pressing the anthera between glasses, but none loose; in other plants globose square

and triangular, apparently imperfect. *Germen* obovate, hispid; hairs hamose, before flowering straight. *Style* filiform, pinkish and pink. *Vasa deferentia* 2, beginning just below the ends of the lobes of the stigma. *Stigma* bilobate; lobes oval, papillose. *Capsules* in some situations not ripening, falling off with the pedicles as soon as the corolla fades, possibly from the sterility of the antherae. *Obs.* 7842. In Darley garden, where it had been long propagated by roots.—*Corolla* 2 thirds of the tenth of an inch long. *Capsule* obovate, hispid. *Seeds* 2, elliptico-oval. *Obs.* 7858.

### 18. VERONICA.

*Calyx* quadrifidus-septemfidus. *Corolla* quadrifida, lacinia infima angustiore. *Capsula* bilocularis trilocularisque.—*Calyx* quadrifid to septemfid. *Corolla* quadrifid; lowermost segment narrower. *Capsule* bilocular and trilocular. *Obs.* 4069. *Bot. mat. med.* i. 28. *Gaertn.* i. 257. t. 54. *Vahl. enum.* i. 55. L.

*Capsule* emarginate retuse obreniform obcordate subrotund and oval; cells polyspermous dispermous and monospermous.

#### 1. *Racemi axillares*.—*Racemi axillary*.

1. **VERONICA scutellata.** *Racemi axillares*, alterni. *Folia* lineari-lanceolata alterna denticulata. *Capsulae* obreniformes.—*Racemi axillary*, alternat. *Leaves* lineari-lanceolate, alternat, denticulate. *Capsules* obreniform. *Obs.* 3528. Specimen gathered in the bed of a dried up rivulet on Malvern chase, in Worcestershire. 18 June.—Specimen in Mrs. M. Stovins herbarium, gathered in the Carat Doncaster in Yorkshire.—*Linn. succ.* 6; *sp.* i. 16; *a Murr.* 59; *a Willd.* i. 65; *a Roem. & Schult.* i. 106; *a Spreng.* i. 73; *hal.* 8. *Vahl. enum.* i. 70. *Retz. scand.* 6. *Willd. ber.* 10; *enum.* i. 22. *Kunth. ber.* 6. *Roth. enum.* i. 43; *germ.* i. 6; *ii. pars.* i. 12. *Schrad. germ.* i. 28. *Poll.* i. 11. *Jacq. vind.* 3. *Moench. marb.* i. 435. *Pollin.* i. 17. *Huds.* 5. *Scop. carn.* i. 20. *Host. fl.* i. 11; *syn.* 8. *Krock.* i. 18. *Purt.* i. 52. *Relh.* 9. *Wahl. lapp.* 8; *carp.* 6.; *helv.* 5; *succ.* i. 9. *Lightf.* i. 74; *ii.* 1142. *Hook. scot.* i. 5. *Abb.*

3. *Lam. & Dec.* iii. 461; v. 388; *syn.* 209. *Sibth. ox.* 5. *Honck.* i. 107. *Bot. arr.* i. 13. *Fl. lond. t.* 333. *Michaux.* i. 5. *Pursh.* i. 11. *Big.* 5. *Nutt.* i. 6. *Bart. phil.* i. 5. *Smith. brit.* i. 21; *engl.* i. 21. Spongy bogs chiefly on sand and gravel.

V. *Hall. hist.* i. 231. n. 532.

V. *aquatica angustifolia.* *Rati syn.* 290.

V. *aquatica, angustiore folio.* *Tourn. paris.* 310.

*Vaill. paris.* 202.

*Anagallis aquatica angustifolia.* *Bauh. J.* iii. 791.

*Stem* to 15 inches long. *Leaves* to  $2\frac{1}{4}$  tenths of an inch broad; teeth minute, scarcely projecting, horizontal and deflex, distant, generally with a shallow crena above their base; upper margin of the crena deflex. *Peduncles* filiform. *Calyx* quadripartite; segments lanceolate, trinervose. *Capsules* twice as long as the calyx, pendant.

2. **VERONICA** *Anagallis.* Racemi axillares, oppositi alternique. Capsulae lenticulares, emarginatae. Folia lanceolata ellipticaque, sessilia. Semina margine membranaceo destituta.—Racemi axillary, opposit and alternat. Capsules lenticular emarginate. Leaves lanceolate and elliptic, sessile. Seeds not surrounded by a membranaceous border. *Obs.* 7127. In a meadow near Bakewell in Derbyshire, in which county I have found it only on limestone.—*Obs.* 7128. In the bed of the Bradford at Alport in Derbyshire.—*Obs.* 7129. Specimen gatherd by Broussonet near Montpellier.—*Obs.* 11752. Specimen gatherd by Mr. Malkin at Dalkey near Dublin, on granite.—*Linn. a Murr.* 59; *a Willd.* i. 65; *a Roem. & Schult.* i. 105; *a Spreng.* i. 73; *hal.* 8. *Willd. ber.* 9; *enum.* i. 21. *Schrad. germ.* i. 29. *Bieb.* i. 10; ii. 453; iii. 10. *Smith. brit.* i. 20; *engl.* i. 21. *Vahl. enum.* i. 70. *Moench. marb.* i. 435. *Lam. & Dec.* iii. 461; *syn.* 209. *Michaux.* i. 5. *Pursh.* i. 11. *Asso.* 2. *Krock.* i. 17. *Sibth. prodr.* i. 7. *Poll.* i. 11. *Scop. carn.* i. 13. *Bluff & Fing.* i. 17. *Roth. enum.* i. 42; *germ.* i. 6.; ii. *pars.* i. 11. *Host. fl.* i. 11; *syn.* 8. *Hook. scot.* i. 6. *Fl. lond. t.* 332. *Seb. & Maur.* 5. *Wib. primit.* 73. *Schlect. ber.* i. 12.



*Big. 5. Bot. arr. i. 12. Nutt. i. 6. Thuill. 7. Wuhl. carp. 6.; herb. 5: ups. 5; succ. i. 9. Thunb. prodr. 2; cap. i. 18. 21; a Schult. i. p. xiii. xvi. Naturalised.*  
*V. Anagallis aquatica. Linn. succ. 5; sp. i. 16. Lightf. i. 73. Berg. cap. 2.*

*V. Hall. hist. i. 231. n. 533.*

*V. aquatica longifolia. Raii syn. 280.*

*Nat. of Europe as far north as Scotland and Sweden, and of North America from Carolina to Canada, and naturalised at the Cape of Good Hope.*

*α lancifolia. (Variation) Leaves lanceolate. Obs. 7127.*

*V. aquatica minor, folio oblongo. Tourn. paris. 310.*

*Vaill. paris. 202, who says it is specifically different from β*

*Anagallis aquatica, flore purpurascente. Bauh. J. iii. 791. No fig.*

*Anagallis aquatica quarta. Lob. ic. i. 467, repr. in Ger. by Johns. 621, and cop. in*

*Anagallis aquatica angustifolia. Park. theatr. 1237.*

*Stems 4½ inches to 7 inches long, terete. Racemi alternat. Corolla pale purplish blue. Seeds oval and obovate, subcomprest, tawny, scarcely scabrous, when steeped not surrounded by a membranaceous border, minute, one fifth of the tenth of an inch long; back convex; face with a foviola in the middle. Obs. 7127.—*

*Corolla pale purplish pink. Obs. 7129. 11752.*

*β ellipticifolia. (Variation) Leaves elliptic. Obs. 7128:*

*V. aquatica major, folio oblongo. Tourn. paris. 310.*

*Vaill. paris. 202.*

*Anagallis aquatica major. Ger. by Johns. 620.*

*Branches represented as terminating in racemi.*

*Sium seu Laver. Fusch. 725, cop. in 12mo 687. c. 277, and*

*Anagallis aquatica, flore caeruleo. Bauh. J. iii. 791.*

*Stems described as angular.*

*Stem 2 feet long. Racemi mostly pubescent; hairs articulated, subglobose at the end. Calyx quadripartite; segments lanceolate; ribs unequal, from 3 to 5, with lateral branches.*

**3. VERONICA** *Beccabunga*. *Racemi axillares, oppositi. Capsulae lenticulares, emarginatae. Folia ovalia*

oblongaque, petiolata. Semina margine membranacea.—Racemi axillary, opposit. Capsules lenticular, emarginate. Leaves oval and oblong, petiolate. Seeds with a membranaceous border. *Obs.* 3530, compared with a specimen gathered by Dr. Johnson in Switzerland.—*Bot. mat. med.* i. 29. *Linn. suec.* 5; *a Willd.* i. 64; *a Roem. & Schult.* i. 105; *a Spreng.* i. 72. *Seb. & Maur.* 5. *Hook. scot.* i. 6. *Big.* i. 5. *Poll.* i. 10. *Roth. enum.* i. 41; *germ.* i. 6; *ii. pars.* i. 10. *Bluff & Fing.* i. 18. *Bart. phil.* i. 5. *Scop. carn.* i. 13. *Host. fl.* i. 11; *syn.* 8. *Pursh.* i. 11. *Nutt.* i. 6. *Vahl. enum.* i. 69. *Willd. enum.* i. 21. *Honck.* i. 101. *Lam. & Dec.* iii. 462; *syn.* 209. *Schrad. germ.* i. 30. *Smith engl.* i. 20. *Bieb.* i. 9. *Wahl. helv.* 5; *carp.* 6; *succ.* i. 9; *ups.* 4. *Link. enum.* i. 24; *in tracts* 48, in the mountains of Portugal and Spain.

*V. Hall. hist.* i. 231. n. 534.

*Anagallis aquatica. Lob. obs.* 248, *repr. in ic.* i. 466.

*Sion non odoratum. Trag.* 188.

*Berula seu Anagallis aquatica. Tab. ic.* 719.

*Anagallis aquatica minor I. Tab. ic.* 718.

(*Sium seu Laver. Fuchs.* 725, *cop. in 12mo ed.* 687. c. 277, and

*Anagallis aquatica, flore caeruleo. Bauh. J.* iii. 791, is *V. Anagallis.*)

*Racemi* glabrous. *Calyx* quadripartite, increasing in size after florescence; segments lanceolate; ribs unequal, 3 to 7. *Seeds* obovate, compressed, tawny, numerous, when steeped appearing surrounded by a membranaceous border; face with a foveola above the middle. In spite of these distinctions, when I look at dried specimens, I cannot help suspecting that this and *V. Anagallis* are varieties of one plant.

*Nat.* of Europe as far north as Scotland and Sweden, and of North America from Pennsylvania to Virginia.

4. *VERONICA labiata.* Racemi axillares. Folia lanceolato-ovata acuminata acute serrata sessilia glabra. Caulis lineis 2 pubescentibus oppositis.—Racemi axillary. Leaves lanceolato-ovate acuminate acutely serrate sessile glabrous. Stem with 2 opposit pubes-

cent lines. *Obs.* 9784. From Wilsons nursery.—*Brown, Rob.* i. 434. *Linn. a Roem. & Schult.* i. 119. 580; *a Spreng.* i. 74. *Hort. kew. epit. add.* V. Derwentia. *Andr. rep. t.* 531.

*Stem* terete, glabrous, with a pubescent stripe on each side, purplish above; hairs adpressed flexuose white. *Leaves* decussate, attenuate, finely serrate from the base to the end; margin purple; serratures unequal. *Racemi* decussate, shorter than the stem, nearly twice as long as the leaves, curvato-erect, pedunculate. *Calyx* quadripartite, glabrous; segments subulato-triangular, sometimes with a very minute one between 2 of the others. *Corolla* white with a tinge of blue. *Nectarium* annular, glandular, very short, pubescent, surrounding the base of the germen. *Capsules* stil green, subrotundo-ovate, bilocular.

5. **VERONICA** *Teucrium*. *Racemi* axillares. *Folia* inciso-serrata. *Caulis* pilis incurvatis pubescens, linea utrinque nuda. *Calyx* quinquepartitus quadripartitusque. *Styli* pedicellis vix breviores.—*Racemi* axillary. *Leaves* inciso-serrate. *Stem* pubescent with incurvate hairs, with a glabrous line on each side. *Calyx* quinquepartite and quadripartite. *Styles* scarcely shorter than the pedicles. *Obs.* 12062. Specimen gatherd by Dr. Johnson in Switzerland.—*Obs.* 12063. Specimen in fl. and fr. gatherd by Mrs. Collinson and Miss Pryce near Stutgard and on the borders of the Rhine.—*Obs.* 3542. 3543. Specimens gatherd in Upton garden.—*Obs.* 3537. Specimen from Leske.—*Obs.* 3894. Specimen from Baron Jacquin gatherd probably in Austria, and named V. Pseudo Chamæadrys.—*Obs.* 3546. Specimen gatherd in Pitcairns garden.—*Obs.* 3552. Specimen gatherd in a garden, in fr. Sept.—*Obs.* 3563. 3564. 3568. Specimens gatherd by Jacquin Leske and Dr. Heise in Germany.—*Obs.* 3566. Specimen gatherd by Broussonet near Montpelier.—*Obs.* 3558. Specimen from Baron Jacquin, just come into blossom.—*Obs.* 12070. Specimens gatherd by Taylor near Verdun in France.—*Obs.* 9753. In a garden.

*Wallr. sched.* 13.

*a ovata* (Variation) Leaves ovate. *Obs.* 12063. 3540.

V. *Teucrium*. *Bot. mat. med.* i. 32. *Linn. nat.* i. 58; *sp.* i. 16, apparently from Haller, with synonyms not according with the specific character, and no original specimen found in his herbarium; *a Willd.* i. 66; *a Roem. & Schult.* i. 114. *Lam. & Dec.* iii. 460; *syn.* 209. *Willd. ber.* 10; *suppl.* 2. *Roth. germ.* i. 7; ii. *pars* i. 13. *Ehrh. in tracts* 269 *Reich.* ii. 163. *Poll.* i. 12. *Pollin.* i. 17. *Thuill.* 7. *Krock.* i. 6. *Sibth. prodr.* i. 7. *Wib. primit.* 73.

V. *latifolia*. *Hort. kew. ed. I.* i. 24; *ed. II.* i. 33. *Linn. a Willd.* i. 71; *a Roem. & Schult.* i. 113; *a Spreng.* i. 73. *Willd. enum.* i. 23. *Vahl. enum.* i. 76. *Link. enum.* i. 25. *Schrad. germ.* i. 35. *Smith in cycl xxxvii. n.* 58. *Kunth. ber.* 6. *Bieb.* i. 10; iii. 10. *Retz. obs.* 9; *scand.* 20. *Schult. obs.* 4. *Sal. R. hort.* 92. *Schlect.* i. 10, *cop. in Brandt* i. 4.

V. *Hall. hist.* i. 232. n. 537.

V. *tetragona*. *Col. ecphr.* i. 289. *t.* 290? In mountainous pastures.—*Raii hist.* i. 850.

*Chamaepitys*. *Brunf.* iii. 86.

*Stem* ascending and assurgent, flexuose, 1½ foot long, pubescent, with 2 and 4 racemi; hairs horizontal, curld. *Leaves* pubescent at the margin, unequally serrate, 1 inch long, those at the base of the peduncles bluntish, those of the terminal shoot oblongo-elliptic, horizontal, decurvedate. *Racemi* pedunculate, decussate, flowering upwards, several flowers blossoming together, when coming into flower extended beyond the stem, when out of flower even with the stem. *Bracteae* lineari-lanceolate. *Calyx* quadripartite quinquepartite and sexpartite; segments unequal; 2 lower segments one fourth longer than the two upper, the smallest when 5 sometimes minute. *Corolla* rotate, 7 tenths broad; tube very short, white, villose within; limb quadripartite, violet blue, with violet lines; upper segment rhomboïdal; lateral segments unequally rhomboïdal; lowermost segment elliptic. *Stamina* inserted at the commissures of the upper segment of the corolla. *Nectarium* fleshy, villose, surrounding

the base of the germen. *Capsule* stil green, orbiculari-obcordate, with a few hairs; cells 2, with 6 embryo seeds inserted by pedicles into one point about the middle of the dissepiment. *Obs.* 9753.—*Capsule* ovali-obcordate, tawny, glabrous, subtuberculate. *Seeds* oval, flat, emarginate at the base; back convex; face with a slight umbo in the middle. *Obs.* 3552.—*Leaves* acute. *Obs.* 3537.

♂ *oblongata* (Variation) *Leaves* ovato-oblong. *Obs.* 12062. 3894. 12070.

V. *Teucrium*. *Vahl. enum.* i. 76. *Link. enum.* i. 25.

*Wahl. carp.* 7; *helv.* 6. *Linn. a Spreng.* i. 73; *hal.* 8. *Smith in cycl.* xxxvii. n. 57. *Willd. suppl.* 2. *Host. fl.* i. 12; *syn.* 8.

V. *dentata*. *Schrud. germ.* i. 37.

V. *minor virgulosa*. *Boerh.* i. 225.

V. *Chamaedrys spuria dicta minor*. *Raii eur.* 260.

*Teucrium* II. *Clus. pann.* 615. *repr. in*

*Teucrium* V. *Clus. hist.* i. 350, *and*

*Teucrium pannonicum*. *Ger. by Johns.* 658, *cop. in* *Chamaedrys spuria minor*. *Park. theatr.* 1106, *and abr. in*

*Chamaedrys falsa species*. *Bauh. J.* iii. 289. *Raii hist.* i. 850.

*Stem* with 4 racemi. *Leaves* at the base of the racemi acute, those of the terminal shoot lanceolate, entire at the margin. *Obs.* 12062.—*Stem* 1½ foot long, with 2 racemi, leafy. *Calyx* quadripartite and quinquepartite; segments gradually shorter upwards, the uppermost more than twice as short as the lateral segments. *Germen* pubescent at the margin. *Nectarium* pubescent. *Capsule* ovali-obcordate, compressed, somewhat shorter than the calyx, with a few fuscous incurvate hairs near the margin. *Obs.* 3894.

γ *angustifolia* (Variation) *Lower leaves* oblong, upper oblongo-lanceolate. *Obs.* 3563. 3564. 3568. 3566. 12064.

V. *Teucrium*. *Roth. fl.* i. 50. *A.* 3. *b.*

V. *prostrata*. *Linn. sp.* i. 17; *a Murr.* 59; *mant.* 326. *a Willd.* i. 67; *a Roem. & Schult.* i. 111. 580; *a Spreng.* i. 73; *hal.* 8. *Vahl. enum.* i. 75. *Lam. &*

*Dec.* iii. 460; *v.* 387; *syn.* 209. *Wib. primit.* 72. *Schrad. germ.* i. 38. *Moench. marb.* i. 435. *Ehrh. in tracts* 269. *Willd. ber.* 10; *enum.* i. 22. *Host. fl.* i. 13; *syn.* 8. *Schult. obs.* 3. *Poll.* i. 14. *Hort. kew. ed. I.* i. 22; *ed. II.* i. 32. *Wahl. helv.* 5. *Reich.* i. 4. *Roth. germ.* i. 7; *ii. pars* i. 14. *Bieb.* i. 10. 413. *Kunth. ber.* 6. *Sibth. prodr.* i. 7. *Krock.* i. 22. *Honck.* i. 114.

*V. Hall. hist.* i. 233. *n.* 538.

*Chamaedrys spuria minor.* *Bauh. J.* iii. 287. *pars* ii. 287.

*Chamaedrys silvestris.* *Dod.* 45, &c. as in *Bot. mat. med.* i. 32. Leaves more exactly lanceolate than in any specimens I have seen. The drawing probably made from the flowering part of the stem and the lower part supplied by analogy.

*Stem* 3 to 6 inches long, with 2 and 4 racemi. *Leaves* of the terminal shoot lanceolato-linear, revolute at the margin. *Calyx* quinquepartite; intermediate segments as short again as the 2 lower. *Obs.* 3661. 12064.

♂ *lanceolata* (Variation) Leaves lanceolate, inciso-dentate. *Obs.* 3561. Specimen from Leske, calld *V. austriaca* and confirmd by Baron Jacquin.

*V. Teucrium.* *Wallr. sched.* 13. *A. c.* α ††

*V. austriaca.* *Linn. sp.* i. 17; *mant.* 316; *a Murr.* 60; *a Roem. & Schult.* i. 109, most nearly allied to *V. orientalis*; *a Spreng.* i. 74. *Link. enum.* i. 25. *Bieb.* i. 13. *Asso* 2. *Schult. obs.* 4. *Krock.* i. 23. *Host. fl.* i. 13; *syn.* 9.

*V. polymorpha.* *Willd. suppl.* 2. *Linn. a Roem. & Schult.* i. 119.

*V. Kram.* 4. *n.* 4.

*Chamaedrys spuria tenuissime laciniata.* *Bauh. J.* iii. 287, from a specimen in fr. gatherd by Agerius near Goritz in Carniola.—*Rati hist.* i. 849.

Pubescent; hairs recurvate. *Stem* 10 inches long, with 2 racemi; hairs recurvate. *Leaves* of the terminal shoot linear-lanceolate; hairs recurvate and subrecurvate; teeth patulous. *Racemi* pedunculate, opposit. *Peduncles* nearly thrice as long as the leaves. *Bracteae* lanceolate. *Pedicles* filiform, when in flower

somewhat longer than the bracteae, when out of flower  $1\frac{1}{2}$  and twice as long as the bracteae,  $1\frac{1}{2}$  as long as the calyx; hairs recurvate. *Calyx* quadripartite; segments ensate, trinervose, the 2 upper about a 6th shorter than the 2 lower, one of the lower with a minute segment at the base. *Pistil* as long as the pedicle, nearly  $1\frac{1}{2}$  as long as the calyx. *Germen* obovato-oval, pubescent. *Stigma* hemispheric.

• *laciniata* (Variation) Leaves elliptic, pinnatifid and lacinate. *Obs.* 3546. 3542.

*V. austriaca.* *Schrad. germ.* i. 29. *Hort. kew. ed. II.* i. 32. (*Linn. a Willd.* i. 70 is described as having pedicles shorter than the bracteae and the stem and leaves with adpressed hairs.—*Vahl. enum.* i. 73. *cop. in Willd. enum.* i. 22, is described as having bracteae longer than the pedicles.)

*V. multifida.* *Linn. mant.* 316. *Scop. carn.* i. 16. *Hort. kew. ed. I.* i. 23.

*V. laciniata.* *Moench. marb.* i. 435.

*V. Jacquinii.* *Linn. a Roem. & Schult.* i. 108.

*Leaves* pinnatifido-lacinate, those of the terminal shoot serrato-dentate. *Obs.* 3542.—*Leaves* pinnatifid and lacinate; those of the terminal shoot pinnatifid. *Obs.* 3546.

‡ *bipinnatifida* (Variation) Leaves bipinnatifid. *Obs.* 3558.

*V. multifida.* *Linn. mant.* 316; *veg.* 56; *a Murr.* 60; *a Spreng.* i. 75; (*Linn. sp.* i. 17, apparently from Buxb. descr. and fig. of *V. orientalis*: A specimen from Siberia with a glabrous calyx was found in his herbarium, but subsequently introduced as Armenia and Iberia are the only places of growth enumerated; *a Willd.* i. 70. *cop. in Vahl. enum.* i. 73, is described to have a villose stem with patulous hairs, and a glabrous calyx.—*Smith in cycl.* xxxvii. n. 49 is *V. abrotanifolia*.)

*Stem* pubescent; hairs incurvate. *Leaves* sessile, pubescent; segments linear and lanceolato-linear, revolute at the margin, those at the base divaricate,  $\frac{1}{4}$  tenth of an inch broad. *Bracteae* tripartite; segments linear. *Pedicles* of the flowers shorter than the bracteae. *Calyx* quinquepartite and quadripartite; seg-

ments ensate, sometimes revolute at the margin; upper segment very short; one of the segments when quadripartite laciniate bifid and with a lateral tooth at the base. *Germen* globose, pubescent with incurvate hairs. *Style* longer than the calyx, shorter than the corolla. *Stigma* hemispheric.

6. *VERONICA decussata*. Racemi axillares. Folia elliptica, integerrima, perennantia. Caulis fruticosus.—Racemi axillary. Leaves elliptic, entire at the margin, perennial. Stem fruticose. *Obs.* 3572. In Clapham garden.—*Linn. a Willd.* i. 60; *a Roem. & Schult.* i. 104; *a Spreng.* i. 74. *Willd. enum.* i. 21. *Link. enum.* i. 24. *Vahl. enum.* i. 68. *Bot. mag. t.* 242. *Hort. kew. ed. I.* i. 20; iii. 500; *ed. II.* i. 31. *Moench. marb.* i. 434. *Sal. R. hort.* 90. 91. l. 15 read modioliformis.

V. elliptica. *Forst. G. austral.* 3.

*Hebe magellanica.* *Linn. a Gmel.* ii. 27.

*Branches* tetragonous, bifariously pubescent; internodia very short, pubescent on the sides opposit to the upper side of the petioles. *Leaves* ovali-elliptic, subcuspidate, twice and several times as long as the internodia, pubescent at the margin, costate, smooth; cuspidates obtuse. *Petioles* shorter than the internodia, pubescent on the upper surface, glabrous underneath. *Racemi* twice as long as the leaves, pedunculate. *Calyx* tetraphyllous, glabrous; phylla ovate, acuminate, incumbent at the base, costate; margin pubescent. *Corolla* white; limb quadripartite; segments elliptic, subnervose. *Nectarium* lobate, very short, surrounding the base of the germen. *Pistil* shorter than the corolla. *Germen* oblongo-conic, bilocular; cells polyspermous. *Style* twice as long as the germen. *Stigma* roundish.

7. *VERONICA officinalis*. Racemi axillares. Folia elliptica ovaliaque, serrata, hirsuta. Caulis repens ascendens hirsutus.—Racemi axillary. Leaves elliptic and oval, serrate, hirsute. Stem creeping, ascending, hirsute. *Obs.* 6382. On banks sides of roads on commons and in woods, on schistus limestone and gritstone.—*Obs.* 11995. Specimen gathered by Brous-



sonet near Montpelier in which all the racemi opposit.—*Obs.* 12066. Specimen gatherd by Dr. Johnson in Switzerland.—*Obs.* 11996. In a wood.—*Obs.* 12067. Specimen gatherd by Mrs. Collinson and Miss Pryce on the Shiedach in Switzerland.—*Bot. mat. med.* i. 30. *Linn. a Willd.* i. 59; *a Roem. & Schult.* i. 110; *a Spreng.* i. 73; *hal.* 7. *Willd. enum.* i. 21. *Vahl. enum.* i. 74. *Lam. & Dec.* iii. 463; *syn.* 209. *Host. fl.* i. 15; *syn.* 5. *Krock.* i. 13. *Asso.* 1. *Poll.* i. 9. *Roth. enum.* i. 45; *germ.* i. 5; ii. *pars* i. 9. *Gaertn.* i. 257. *t.* 54. *Relh. ed. I.* 4. *Scop. carn.* i. 20. *Moench. marb.* i. 434. *Link. in tracts* 48. *Reich.* i. 3. *Sibth. ox.* 4; *prodr.* i. 6. *Bieb.* i. 10. *Wallr. sched.* 22. *Hook. scot.* i. 6. *Smith. engl.* i. 22. *Honck.* i. 88. *Wahl. lapp.* 8; *ups.* 4; *carp.* 4; *helv.* 3; *succ.* i. 7. *Thuill.* 6, who describes a glabrous var.—*Schrad. germ.* i. 31, who describes a var. with nearly glabrous leaves. *V. Linn. lapp.* 6. *n.* 5. *Hall. hist.* i. 233. *n.* 540. *V. vera et major.* *Ger. by Johns.* 626, *cop. in V. mas. Stap.* 674. *V. mas supina. Raii hist.* i. 851. *V. mas erecta. Raii hist.* i. 851.

Hairs articulated. *Racemi* ascending, alternat and opposit, sometimes all opposit, interrupted below. *Stigma* turbinate. *Capsules* turbinato-obcordate, sometimes retuse, hirsutulous, fuscous and atrous. *Seeds* oval, flat, subemarginate at the base, honeycoloured. *Obs.* as above.—*Stem* a foot long. *Leaves* 1½ inch long. *Obs.* 11996.—*Stem* 14 inches long. *Leaves* 1 inch 7 tenths long. *Racemus* 5½ inches long. *Obs.* 9287.

8. *VERONICA pyrenaica.* *Racemi* axillares. *Caulis* repens. *Folia* ovali-elliptica serrata glabra.—*Racemi* axillary. *Stem* creeping. *Leaves* ovali-elliptic serrate glabrous. *Obs.* 11994. Specimen in Mrs. M. Stovins herbarium, from Mr. Winch, gatherd in Scotland. The account of the creeping stem from All.—*Honck.* i. 91.

*V. Allionii.* *Linn. a Willd.* i. 59; *a Roem. & Schult.* i. 110. *Lam. & Dec.* iii. 463; *v.* 388; *syn.* 209. *Hook. scot.* i. 7.

*V. officinalis*  $\beta$  *Linn. sp. i. 15. Smith engl. i. 22; in lin. tr. i. 190; in cycl. xxxvii. n. 52.*

*V. Ger. Lud. 322. n. 2. All. specim. 21. t. 4. f. 3.*

*V. mas repens pyrenaica, folio longiori glabro. Tourn. schol. 46. Raii eur. 369. Pluk. phyt. t. 233. f. 1.*

*Branch* pubescentulous, especially above. *Leaves* unequally serrate, longer than the internodia. *Petioles* very short, pubescentulous. *Racemi* 2, opposit, near the end of the branch. *Peduncles* pubescent, straight, patent,  $\frac{1}{2}$  tenth of an inch broad, twice as long as the leaves; hairs articulated. *Racemi* oblong, interrupted below, pubescent, somewhat shorter than the peduncles. *Calyces* glabrous above; segments lanceolate. *Stigma* turbinate.

9. *VERONICA montana. Racemi axillares. Folia ovata serrata petiolata. Pedicelli calyce longiores.—*Racemi axillary. Leaves ovate, serrate, petiolate. Pedicles longer than the calyx. *Obs. 3684.* Gatherd at Norton in Derbyshire; in a lane between Linaere wood and Cutthorpe common, 25 May; between Brampton and the East moor, and in Barlow woods on gritstone; compared with a specimen gatherd by Mrs. M. Stovin in a wood at Matlock on limestone, by Miss Stokes in Knaresborough wood in Yorkshire, probably on limestone, and with a specimen from near Edinburgh.—*Linn. sp. i. 17; mant. 316; Linn. fil. suppl. 83; a Murr. 59; a Willd. i. 68; a Roem. & Schult. i. 118; a Spreng. i. 73. Willd. suppl. 2. Vahl. enum. i. 78. Thuill. 8. Schreb. lips. 10. Lam. & Dec. iii. 459; syn. 209. Schrad. germ. i. 32. Smith. brit. i. 21; engl. i. 23. Hook. scot. i. 6. Wallr. sched. 21. Wuhl. carp. 7; suc. i. 9. Poll. i. 13. Roth. enum. i. 45; germ. i. 7; ii. pars i. 15. Host. fl. i. 14; syn. 9. Honck. i. 118. Retz. scand. 6. Krock. i. 19. Moench. marb. i. 435. Lightf. i. 74. Fl. lond. t. 220. Bot. arr. i. 13. On red clay.*

*V. procumbens. Hall. gott. 235.*

*V. Hall. hist. i. 233. n. 539.*

*V. supina. Rupp. ab Hall. 244.*

*V. chamaedryoides. Raii syn. ed. II. 179; ed. III. 281. In moist woods and hedges.*

*Chamaedrys spuria*. *Raii hist.* i. 850. The descr. within and without crotchets from

*Alyssum montanum*. *Col. ecphr.* i. t. 288, *cop. in Park. theatr.* 589. *Merr.* 6. On Hamstead heath.

(*V. vulgator*. *Bauh. J.* iii. *pars* ii. 282, (*mispr.* 274) is *V. officinalis*.)

*Roots* fibrous, long. *Hirsute*. *Stem* prostrate, often creeping below, from 5 to 16 inches long. *Branches* few, thrice as short as the stem, seldom flowering. *Leaves* ovate and subrotundo-ovate, acute and rather obtuse, hirsutulous, dull, the lower tinged with brownish purple underneath. *Racemi* pedunculate, 1 and 2 at a joint, when 2 opposit, with from 2 to 8 flowers, hirsutulous, longer than the leaves and internodia. *Peduncles* slender, as long as the leaves. *Pedicels* filiform. *Calyx* quadripartite, villose, segments obovato-elliptic, the 2 upper somewhat shorter. *Corolla* quadripartite, 3 tenths of an inch broad, pale purplish blue, white and sometimes the upper half purplish blue with the lower half white; 3 upper segments obovate, the uppermost purplish with 7 purple lines; lateral segments somewhat smaller, with 4 purple lines; lowermost segment oval, twice as narrow as the lateral segments. *Germen* oval, flat, villose at the margin. *Capsules* bilocular, reniform, emarginate at each end, flat, 2 tenths of an inch long, 3 broad, somewhat longer than the calyx; cells containing to 5 seeds. *Seeds* not yet ripe, orbicular and oval. *Hilum* at the margin. *Chalaza* umbilicate, a little below the middle of the face.

*Nat.* of the kingdom of Naples Hungary France Switzerland Germany Denmark and Britain on various soils, in the south of Europe on mountains, in the north in woods.

10. *VERONICA bibarbata*. *Racemi* axillares. *Folia* ovata cordataque, serrata, sessilia subsessiliaque. *Caulis* bifariam pilosus. *Capsulae* obcordatae.—*Racemi* lateral. *Leaves* ovate and cordate, serrate, sessile and subsessile. *Stem* bifariously pilose. *Capsules* obcordate. *Obs.* 3533. *Bot. mat. med.* i. 31.  
*V. Chamaedrys*. *Linn. a Murr.* 60; *a Willd.* i. 69;

*a* Roem. & Schult. i. 116; *a* Spreng. i. 73; *hal*. 8. Willd. ber. 10; *enum*. i. 22. Vahl. *enum*. i. 77. Poll. i. 14. Schrad. *germ*. i. 33; Wallr. *sched*. 22. Schlecht. i. 11. Wahl. *lapp*. 8; *helv*. 5; *ups*. 5; *carp*. 8; *succ*. i. 10. Bieb. i. 11. Thunb. *jap*. 20. Host. *fl*. i. 14; *syn*. 9. Asso. 2. Krock. i. 21. Moench. *marb*. i. 435. Sibth. *prodr*. i. 8. Gmel. *C. bad*. i. 33. Roth. *enum*. i. 46; *germ*. i. 7; ii. *pars* i. 16. Mart. *rust. t.* 66, corolla coloured pinkish white.—Seb. & Maur. 6. Lightf. i. 74. Hook. *scot*. i. 7. Smith. *engl*. i. 23. Scop. *carn*. i. 14. I. 2. a. Kunth. *ber*. 6. Bluff & Fing. i. 19. Succ. i. 9. Brandt *ber*. i. 5. Link. *enum*. i. 26; *in tracts* 67. In the north of Spain and Portugal.

V. Hall. *hist*. i. 232. n. 536.

*Teucrium pratense*, Lob. *obs*. 259, *repr. in*

*Chamaedrys*. Clus. *hist*. i. 352, *and*

*Chamaedrys sylvestris*. Ger. *by Johns*. 657. Raii i. 850; *cant*. 32.

*Leaves* rugose, obtuse; face nearly glabrous; back hirsute; serrations obtuse. *Peduncles* solitary and opposit, longer than and twice and thrice as long as the leaves, hirsute, exceeding the stem. *Calyx* quadripartite, when out of flower compressed; segments lanceolate, the 2 lower somewhat longer. *Corolla* rotate, blue, with violet lines, whitish blue at the extreme margins and underneath, reflex at the margin, somewhat longer than the calyx; tube white, green at the base; throat pilose; mouth surrounded with a pentagonal crenate white areola; uppermost segment rhombeo-subrotund, incumbent and nearly so; lateral segments rhombeo-oval, oblique; lowermost segment oval-elliptic, distinct. *Stamina* blue. *Filaments* clavate. *Style* purple. *Stigma* obtuse. *Vasa deferentia* very slender. *Capsule* hirsutulous, quadrivalve. *Seeds* orbicular, fulvous; face with an oval foveola.

β *alba*. Corolla white. *Obs*. 6617.

V. *Chamaedrys albescens*. Bot. *mat. med*. i. 32.

*Chamaedrys sylvestris*, flore albo. Merr. 25.

11. VERONICA *orientalis*. Racemi axillares Folia inferiora pinnatifida, superiora lanceolata, dentata

integerrimaque. Caulis ascendens, pilis incurvatis pubescens, linea utrinque nuda. Calyx quinquepartitus quadripartitusque, lacinia 5ta minima. Styli pedicellis breviores. Capsulae obcordatae, pilis incurvatis pubescentes.—Racemi axillary. Lower leaves pinnatifid; upper leaves lanceolate, dentate and entire at the margin. Stem ascending pubescent with incurvated hairs, with a glabrous line on each side. Calyx quinquepartite and quadripartite, the 5th segment minute. Styles shorter than the pedicles. Capsules obcordate, pubescent, with incurvate hairs. *Obs.* 3556. Specimen gathered in Upton garden, confirmed by Solander.—*Obs.* 9461. In Renishaw garden. 6 June.—*Mill. ph. dict. n.* 10. *Hort. kew. ed. I. i.* 23; *ed. II. i.* 32. *Pers. ench. i.* 12. *Linn. a Willd. i.* 69; *a Roem. & Schult. i.* 107; *a Spreng. i.* 74. *Vahl. enum. i.* 71. *Willd. enum. i.* 22. *Bieb. i.* 12; *iii.* 13. *Smith in cycl. xxxvii. n.* 44.

*V. pilocarpa. Link. enum. i.* 25?

*V. heterophylla. Sal. R. ic. 7. t.* 4.

*V. multifida. Linn. sp. i.* 17.

*Leaves* microscopically subpubescent. *Calyx*, segments trinervose; uppermost segment ensate and triangular, twice as short as the lateral segments; lateral segments ensate; 2 lower segments one fourth longer than the lateral segments, ensate and linearilanceolate. *Style* permanent. *Capsule* obcordate, broader than long, comprest.

*β angustifolia* (Variation) Cauline leaves dentate, those of the branches and terminal shoot entire at the margin. *Obs.* 12065. Specimen gathered in Soho nursery, compared with another in Mrs. M. Stovins herbarium from the same nursery.

*V. orientalis β Bieb. i.* 12. *Vahl. enum. i.* 72. *Linn. a Roem. & Schult. i.* 107.

*V. taurica. Linn. a Willd. i.* 70. *Link. enum. i.* 25.

*Calyx* pubescent. *Capsule* obcordate, pubescent.

12. *VERONICA abrotanifolia.* Racemi axillares. Folia pinnatifide laciniata, pubescentia; laciniis linearibus margine revolutis. Caulis pubescens, adscendens. Calyx quinquepartitus quadripartitusque, laciniis pinnatifidis, 5ta minima. Bractee palmatae.—

**Racemi axillary.** Leaves pinnatifidly lacinate, pubescent; segments linear, revolute at the margin. Stem pubescent, ascending. Calyx quinquepartite and quadripartite; segments pinnatifid, the 5th minute. Bractees palmate. *Obs.* 7482. In Darley garden, in a pot. May. June.

*V. multifida.* *Bieb.* i. 12; iii. 13. *Linn. a Roem. & Schult.* i. 110. *Smith in cycl.* xxxvii. n. 49. *Sibth. prodr.* i. 8; ii. 355. *Bot. mag. t.* 1679. (*Linn. sp.* i. 17 is *V. orientalis*. *Linn. a Willd.* i. 69 *cop. in Vahl. enum.* i. 73, is described as having a stem villose with patulous hairs.)

**Stem** to  $7\frac{1}{4}$  inches long, purplish brown; hairs hoary. **Leaves** sometimes linear with a tooth on each side; segments linear, revolute at the margin; middle segment with a furrow along the face; lateral segments convex above, concave underneath,  $\frac{1}{4}$  of the tenth of an inch broad. **Racemi** 2, opposit, extending one third beyond the stem; upper end in flower. **Peduncles** 7 times longer than the adjoining leaves, pubescent,  $2\frac{1}{4}$  inches long. **Pedicles** pubescent; hairs incurvate. **Calyx** pubescent; segments trinervose; 2 upper nearly as short again, some pinnatifid; lacinulae linear, erect; hairs patulous. **Corolla** purplish blue, 4 tenths of an inch broad; upper segment rhombo-subrotund, lower elliptic; lateral segments oval. **Germen** oval, pubescent with incurvate hairs. **Style** glabrous, bluish. **Stigma** obtuse.

2. *Racemi axillares terminalesque.*—*Racemi axillary and terminal.*

13. **VERONICA urticifolia.** *Racemi axillares terminalesque.* *Folia ovata sessilia subhirsuta.* *Caulis pubescens.*—*Racemi axillary and terminal.* Leaves ovate sessile subhirsute. Stem pubescent. *Obs.* 3557. Specimen from Baron Jacquin in fl. and fr.—*Obs.* 12060. Specimen gathered by Mrs. Collinson and Miss Pryce on the Grindewald and the Col de Balme in Switzerland.—*Obs.* 12061. Specimen gathered by Dr. Johnson in Switzerland.—*Obs.* 3534. Specimen in fl. and fr. gathered in Upton garden.—*Linn. fil. suppl.* 83;

*a Murr.* 60; *a Willd.* i. 70; *a Roem. & Schult.* i. 118; *a Spreng.* i. 78. *Vahl. enum.* i. 77; *Willd. enum.* i. 22. *Schult. obs.* 4. *Lam. & Dec.* iii. 459; *syn.* 209. *Host. fl.* i. 14; *syn.* 10. *Wahl. helv.* 5. *Schrad. germ.* i. 34. *Hort. kew.* i. 24; *ed. II.* i. 33. *Link. enum.* i. 26. *Smith in cycl.* xxxvii. n. 63. *Roth. enum.* i. 47.

*V. latifolia.* *Linn. sp. ed. I.* 18; *ed. II.* i. 18; *nat.* ii. 58; *veg.* 57; *a Murr.* 60. (Murrays synonym belonging to *V. Teucrium.*) *Gou. hort.* 11; *monsp.* 65. *Roth. germ.* i. 8; ii. *pars* i. 17.

*V. Buxb. cent.* i. 23. *t.* 34. *Roy.* 303. n. 11. *Sauv.* 135. n. 100. *Hall. hist.* i. 232. n. 535. *Boerh.* i. 225. n. 11.

*V. maxima.* *Dalech.* ii. 1165. *Hall. opusc.* 215.

*Chamaedrys falsa maxima.* *Bauh. J.* iii. *pars* ii. 286. On la Bastie near Geneva.

Hirsutulous; hairs articulated, globiferous. *Stem* a foot long, erect. *Leaves* unequally serrate, acute, the lower in some plants ovali-ovate, and those above gradually becoming more and more lanceolato-ovate. *Racemi* pedunculate, opposit, sometimes even the terminal ones twice as long as the leaves, the lowermost sometimes dichotomous, to 4 inches long. *Peduncles* slender, patent, as long as the leaves. *Pedicles* pubescent, twice as long as the bracteae, the lower filiform, the upper capillary. *Bracteae* lineari-lanceolate. *Calyx* quadripartite, pubescent; segments equal, lanceolate and oblongo-elliptic, trinervose. *Corolla*  $1\frac{1}{2}$  as long as the calyx, pubescentulous; hairs articulated. *Stamina* longer than the corolla. *Germen* oval. *Style* filiform. *Stigma* simple. *Capsules* obreniform, nearly twice as long as the calyx, nearly 2 tenths of an inch long, tawny brown, hirsutulous; cells with several seeds. *Seeds* oval, subconcave, tawny yellow, emarginate at the base, sometimes subacute, microscopically reticulate; back convex; face slightly concave, with a longitudinal ridge and central prominence.

3. *Racemi terminales foliosi.*—*Racemi terminal leafy.*

14. *VERONICA peregrina.* *Racemi terminales foliosi.* *Pedunculi corollaeque calyce breviores.* *Folia ob-*

*longa linearia lanceolataque*.—*Racemi* terminal leafy. Peduncles and corollae shorter than the calyx. Leaves oblong linear and lanceolate. *Obs.* 12072. Specimen gathered by Taylor in uncultivated garden ground, at Verdun in France, in May.—*Obs.* 3038. Specimen gathered in Leyden garden.—*Obs.* 12073. In Darley garden.—*Obs.* 3037. In Perry-hill nursery, from American soil, May and Aug.—*Obs.* 3613. Specimen gathered by Russel probably in a garden.

*a glabra*. Glabrous. *Obs.* 12073.

*V. peregrina*. *Linn. suec.* 8, introduced with corn; *sp.* i. 20; *a Willd.* i. 76; *a Roem. & Schult.* i. 122; *a Spreng.* i. 76. *Vahl. enum.* i. 85. *Link. enum.* i. 27. *Michaux.* i. 4. In Carolina among potherbs.—*Pursh.* i. 11. *Bart. phil.* i. 6. *Bluff & Fing.* i. 28. *Lam. & Dec.* iii. 464; *syn.* 210. *Honck.* i. 132. *Schrad. germ.* i. 46. In corn fields about Prague.—*Roth. enum.* i. 59; *germ.* ii. *pars* i. 24. In Pomerania in cultivated ground.—*Hort. kew. ed. I.* i. 25; *ed. II.* i. 35. *Krock.* i. 32. *Retz. scand.* 7. *Moench. marb.* i. 437. *Smith in lin. tr.* i. 192; *in cycl.* xxxvii. n. 85. *Gort. foed.* 7. *Mull.* 5. In the island Amagria.

*V. romana*. *Linn. sp.* i. 19; *mant.* 317.

*V. marilandica*. *Linn. sp.* i. 20, apparently from Clayt. *a Murr.* 61; *a Willd.* i. 76. *Murr. in commentat. gott. nov. v. t.* 3. *Retz. scand.* 7.

*V. caroliniana*. *Walt.* 61.

*V. cauliculis procumbentibus*. *Clayt. a Gron. ed. I.* 4.

*V. floribus solitariis sessilibus*. *Clayt. a Gron. ed. II.* 2.

*V. Raii hist.* i. 847. n. 1. *Boerh.* i. 225. n. 17. In Holland.

*V. annua alba, polygoni folio*. *Mor. & Bob. s.* iii. t. 24. *ord.* 1. f. 19.

Glabrous. *Calyx* quadripartite; segments linearilanceolate, trinervose, nearly equal,  $1\frac{1}{2}$  as long as the corolla. *Corolla* quadripartite; segments irregularly oval. *Stamina* 2, twice as short as the corolla, inserted at the commissures. *Germen* oval. *Style* very short. *Obs.* 3613.—*Stems* ascending. *Racemi* to a foot long. *Capsules* obcordate and obreniform; cells



polyspermous. *Style* permanent, mostly shorter than the emarginature. *Seeds* oval and oblong, fulvous,  $\frac{1}{3}$ rd of a tenth long; back slightly convex; face flat, with an umbo in the middle. *Obs.* 12073.

*Nat.* probably of America and carried with corn to Europe. In cultivated ground in the south of France Holland Germany Denmark Sweden Iceland and North America.

$\beta$  *pubescens*. Stem and peduncles pubescent. *Obs.* 3037. (*V. romana*. *Roth. germ.* i. 9; ii. *pars* i. 23 is *V. arvensis*  $\beta$  *Roth. enum.* i. 58.)

*Hairs* globiferous. *Stem* branched. *Leaves* glabrous, lanceolate, entire at the margin. *Calyx* quadripartite; segments lanceolate, obtuse, ciliate; hairs distant. *Capsules* obcordate and obreniform, compressed, tawny; margin cultrate, ciliate; cells polyspermous. *Seeds* oval, plano-convex, fulvous.

15. *VERONICA agrestis*. Racemi terminales foliosi. Folia ovata, serrata. Pedunculi calyce longiores. Calycis laciniae ellipticae lanceolataeque. Corollae laciniae obovatae. Semina concava.—Racemi leafy. Leaves ovate, serrate. Peduncles longer than the calyx. Segments of the calyx elliptic and lanceolate. Segments of the corolla obovate. Seeds concave. *Obs.* 3609. In a garden growing spontaneously.—*Linn. suec.* 7; *sp.* i. 18; *a Murr.* 60; *a Willd.* i. 72; *a Roem. & Schult.* i. 125; *a Spreng.* i. 75; *hal.* 9. *Vahl. enum.* i. 80. *Lam. & Dec.* iii. 467; *syn.* 210. *Schrad. germ.* i. 42. *Wahl. ups.* 6; *suec.* i. 10; *helv.* 6; *carp.* 8. *Retz. scand.* 6. *Scop. carn.* i. 21. *Roth. enum.* i. 52; *germ.* i. 8; ii. *pars* i. 17. *Poll.* i. 16. *Link. enum.* i. 26. *Moench. marb.* i. 436. *Asso* 2. *Sibth. ox.* 6; *prodr.* i. 9  $\alpha$ . *Krock.* i. 27. *t.* 5. *Gmel. C. bad.* i. 37. *Huds.* 7. *Lightf.* i. 75; ii. 1142. 1149. *Hook. Scot.* i. 7. *Willd. ber.* 10; *enum.* i. 23. *Kunth. ber.* 7. *Host. syn.* 10; *fl.* i. 16. *Schult. obs.* 4. *Bluff & Fing.* i. 25. *Bieb.* i. 14; iii. 16. *Honck.* i. 121. *Thuill.* 8. *Fl. lond.* i. 1. *t.* *Bot. arr.* i. 14. *Smith brit.* i. 23; *engl.* i. 24. *Pollin.* i. 19. *Walc. t.* *Rost. & Schm.* 11. *V. arvensis*. *Thunb. jap.* 20. *V. Hall. hist.* i. 237. *n.* 549. *Raii syn.* 279. *n.* 4.

V. *flosculis oblongis pediculis insidentibus, chamaedryos folio.* *Tourn. paris.* 168. *Vaill. paris.* 201. *Boerh. i.* 226.

V. *flosculis oblongis pediculis insidentibus, chamaedryos folio alternis.* *Vaill. paris.* 201. *Boerh. i.* 226. n. 22.

*Alsines alterum genus.* *Fuchs. c. 7. ed. 12mo,* 24, *cop. in*

*Alsine serrato folio.* *Bauh. J. iii.* 366, *and*

*Alsine media.* *Dalech. ii.* 1232, *which repr. in*

*Elatine altera.* *Dalech. ii.* 1239.

*Alsine spuria altera.* *Dod. 31, repr. in*

*Alsine foliis trissaginis.* *Lob. ic. i.* 464 *and Ger. by Johns.* 616, *and cop. in Park. theatr.* 764. *Ruii hist. i.* 847. *Ger. J.* 492.

Hirsutulous. *Stems* procumbent, simple and trichotomous, from 2 inches to 2 feet long, the flowering part to 14 inches long. *Leaves* obtuse, in some plants subrotundo-ovate; serrations and serratures obtuse; lower floral leaves opposit, the rest alternat, in some plants most of the floral leaves opposit. *Peduncles* patulous, after flowering recurvate. *Calyx* quadripartite; segments obtuse, ovato-elliptic and lanceolato-elliptic, 2 lower larger than the 2 upper, from  $1\frac{1}{4}$  to  $2\frac{1}{4}$  tenths of an inch long, subquinenervose below. *Corolla* rotate; tube greenish; hirsute within; segments obovato-subrotund, the 3 upper pale blue above, white at the base, the lowermost white. *Nectarium* annular, surrounding the base of the germen, glandular, green, very short. *Germen* transversely oval, microscopically pubescent; hairs closely incurvate. *Capsule* didymous, obreniform, pubescent; hairs attenuate, straight, capitate; cells with 4 seeds. *Seeds* obovate and oval, fulvous, half and  $\frac{1}{4}$  of the tenth of an inch long; face concave; back convex, transversely rugose. *Tunic* fulvous semitransparent. *Perisperm* whitish tawny, granular; granules roundish, rather opaque. *Corculum* terete, whitish tawny, near the back of the perisperm. *Cotyledons* not distinguished.

*B pedunculata* (Variation) Peduncles of the fruit twice as long as the leaves. *Obs.* 12288. Specimen from

Mr. Winch, gathered in Suffolk, probably introduced with foreign corn.

*V. Tournesortii.* *Gmel. C. bad.* i. 39.

*V. hospita.* *Roth. enum.* i. 53. *Bluff & Fing.* i. 25.

*V. persica.* *Linn. a Roem. & Schult.* i. 126. *Fries succ.* 63.

*V. Buxbaumii.* *Pollin.* i. 20. *Host. fl.* i. 16.

*V. filiformis.* *Bieb.* i. 15; iii. 17? (*Smith in lin. tr.* i. 195 is described as having a corolla twice as long as the calyx.)

Hirsutulous; hairs articulated, acute. *Leaves* to 8 tenths long. *Peduncles* pubescent, somewhat longer than the leaves,  $\frac{1}{4}$  inch long; of the fruit 1 inch 3 tenths long. *Calyx* levigate; segments lanceolate, when in fruit elliptic, trinervose. *Corolla* blue; segments obovate, just longer than and thrice as broad as the segments of the calyx. *Capsule* obreniform, whitish brown, veind, 2 tenths long, to 4 broad. *Seeds* obovate and oval, similar in structure to those of *a*, whitish, with a yellow hilum, possibly not ripe.

16. *VERONICA arvensis.* Racemi terminales foliosi.

*Folia* ovata. *Pedunculi* calyce breviores. *Calycis* laciniao lineari-lanceolatae. *Semina* plana laevia.—

Racemi terminal leafy. *Leaves* ovate. *Peduncles* shorter than the calyx. *Segments* of the calyx lineari-lanceolate. *Seeds* flat, levigate. *Obs.* 3607. In a garden growing spontaneously.—*Linn. succ.* 7; *sp.* i. 18; *a Murr.* 60; *a Willd.* i. 73; *a Roem. & Schult.* i. 125; *a Spreng.* i. 75; *hal.* 9. *Vahl. enum.* i. 80. *Lam. & Dec.* iii. 466; *syn.* 210. *Krock.* i. 28. *t.* 5. *Willd. ber.* 11; *enum.* i. 23. *Kunth. ber.* 7. *Seb. & Maur.* 6. *Moench. marb.* i. 436. *Asso* 2. *Poll.* i. 16. *Bieb.* i. 15. *Wahl. carp.* 8; *helv.* 6; *succ.* i. 12; *ups.* 6. *Roth. germ.* i. 8; ii. *pars* i. 19; *enum.* i. 57. *Jacq. vind.* 4. *Host. fl.* i. 18; *syn.* 10. *Bluff & Fing.* i. 24. *Gou. hort.* 12; *monsp.* 65. *Gmel. C. bad.* i. 38. *Fl. lond.* t. 133. *Bot. arr.* i. 14. *Smith. brit.* i. 24; *engl.* i. 24. *Pollin.* i. 20. *Huds.* 6. *Sibth. ox.* 6; *pradr.* i. 9. *Scop. carn.* i. 18. *Schult. obs.* 4. *Retz. scand.* 8. *Lightf.* i. 75; ii. 1142. *Rost. & Schm.* 11.

*V. aciuifolia.* *Host. syn.* 11, probably a glabrous var.

*V. Hall. hist. i. 236. n. 548. Boerh. i. 225. n. 19.*

*Raii syn. 279. n. 5.*

*V. flosculis cauliculis adhaerentibus. Tourn. paris. 168.*

*Vaill. paris. 201.*

*Alsine serrato folio hirsutiori. Bauh. J. iii. 367.*

*Alsine foliis veronicae. Ger. J. 489, cop. in*

*Alsine foliis subrotundis veronicae. Park. theatr. 762 and*

*Alsine foliis veronicae. Ger. by Johns. 613. Raii hist. i. 847.*

(Elatine polyschides. *Dalech. ii. 1239* is a different plant.)

*Hirsutulous. Stems* from an inch to a foot long, ascending and erect. *Leaves* serrate. *Calyx* quadripartite, hirsute; segments linear and lanceolate, trinervose at the base. *Capsule* obcordate, ciliate; cells with about 12 seeds. *Seeds* oval, fulvous, one-third of the tenth of an inch long; face slightly concave with a longitudinal ridge in the middle; back slightly convex.

*Nat. of Cyprus and of Europe from Crimea Italy and Spain to Sweden and Scotland.*

17. *VERONICA hederifolia*. Racemi terminales foliosi. Calycis laciniae cordatae.—Racemi terminal leafy. Segments of the calyx cordate. *Obs.* 3610. On a hedge bank near Chesterfield on gritstone, compared with others gatherd in Monsal dale in Derbyshire on limestone, and by Dr. Johnson in Switzerland.—*Linn. suc. 7; sp. i. 19; a Willd. i. 73; a Roem. & Schult. i. 121; a Spreng. i. 75; hal. 9. Vahl. enum. i. 82. Lam. & Dec. iii. 467; syn. 210. Roth. enum. i. 54; germ. i. 8; ii. pars i. 20; sp. 20. Retz. scand. 7. Wahl. helv. 6; suc. i. 11. Willd. ber. 11; enum. i. 23. Horn. i. 20. Kunth. ber. 7. Schrad. germ. i. 43. Moench. marb. i. 436. Schult. obs. 4. Pollin. i. 21. Asso 2. Krock. i. 29. Poll. i. 17. Host. fl. i. 16; syn. 11. Sibth. ox. 7; prodr. i. 9. Huds. 7. Lightf. i. 76; ii. 1142. Hook. scot. i. 7. Smith. brit. i. 24; iii. 1384; engl. i. 25. Bieb. i. 15. Scop. carn. i. 21. Walc. t. Honck. i. 125. Bluff & Fing. i. 26. Succ. i. 10. Seb.*

& Maur. 6. *Fl. Lond. t.* 110. *Bot. arr. i.* 15. *Link in tracts* 48. *Gmel. C. bad. i.* 40. *Rost. & Schm. 11.*

*V. Hall. hist. i.* 237. *n.* 550. *Raii syn. 280. n.* 7.

*V. cymbalariae folio. Tourn. paris. 167. Vaill. paris. 201.*

*Alsine spuria prior. Dod. 31, repr. in*

*Morsus gallinae folio hederulae. Lob. obs. 247; ic. i. 463, cop. in*

*Alsine folio hederulae. Park. theatr. 762.*

*Alsines genus. Bauh. J. iii. 368, and repr. in*

*Alsine hederacea. Ger. by Johns. 616. Ger. J. 498.*

*Elatine prior. Dalech. ii. 1238.*

*Leaves reniformi-cordate, acute and obtuse, serratolobate trilobate to septemlobate and entire at the margin, the lower opposit; lower floral leaves opposit, the rest alternat. Peduncles filiform. Calyx quadripartite; segments acute. Capsule bilocular, didymous, scarcely compressed; cells dispermous and monospermous. Seeds hemispheric, concave, umbilicate, transversely rugose, white, when dried atro-fuscous, resembling those of Galium Aparine.*

*β alba. Corolla white. Obs. 12005. In Leyden garden. Nat. of Europe and Asia from Cyprus India Levant Crimea Italy and cooler parts of Spain and Portugal to Sweden and Scotland.*

18. *VERONICA verna. Racemi terminales foliosi, floribus subsessilibus. Folia floralia calycisque laciniae lanceolatae. Folia elliptica palmataque.—Racemi terminal leafy. Flowers subsessile. Floral leaves and segments of the calyx lanceolate. Leaves elliptic and palmate. Obs. 12004. Specimen from Davies, from a garden.—Obs. 4415. Specimen without fructifications from L'Heritier.—Linn. succ. 8; sp. i. 19; a Murr. 60; a Willd. i. 75; a Roem. & Schult. i. 119; a Spreng. i. 76; hal. 10. Rost. & Schm. 12. Wahl. ups. 7; carp. 8; suc. i. 12. Vahl. enum. i. 83. Lam. & Dec. iii. 465; syn. 210. Schrad. germ. i. 45. Retz. scand. 7. Huds. 8. Schlect. ber. i. 7. Bot. arr. i. 15; iii. p. cxvi. 487. Smith. brit. i. 26; engl. i. 26. Engl. bot. t. 25. Schreb. lips. 11. Poll. i. 18. Roth. enum. i. 58; germ. i. 9; ii. pars. i. 22. Willd. ber. 11; enum.*

i. 24. *Kunth. ber.* 8. *Rose* 444. 472. *app. t. 2. f. 1.*  
*Moench. marb.* i. 436. *Krock.* i. 31. *Eschenb. obs.* 19.  
*Bluff & Fing.* i. 27. *Geuns* 15. *Succ.* i. 11. *Host.*  
*syn.* 11; *fl.* i. 18. *Schult. obs.* 5. *Pollin.* i. 22. *Gmel.*  
*C. bad.* i. 42. *Link. in tracts* 67; *enum.* i. 26; but he  
describes the capsules as roundish.  
*V. humilis.* *Dill. giss.* 47; *app.* 38.  
*V. Hall. hist.* i. 237. n. 552.

Pubescent; hairs acute and globiferous. Stems  
from  $\frac{1}{4}$  to 3 inches long, crowded, erect and ascending,  
strict above. Leaves, the lower subserrate and sublin-  
ceise. Calyx quadripartite; segments lineari-lanceo-  
late, trinervose, the 2 lower longer. Capsule obcor-  
date, pubescent; cells with about 8 seeds. Seeds irre-  
gularly oval, compressed, levigate. Obs. 12004.

Nat. of Crimea Hungary the north of Spain Por-  
tugal and Italy France Switzerland Germany Sweden  
Suffolk and Norfolk.

19. VERONICA *triphyllus*. Racemi terminales fo-  
lios. Folia serrata incisa palmataque. Calycis foli-  
orumque laciniae oblongae. Semina concava.—Rac-  
emi terminal leafy. Leaves serrate incise and palmate.  
Segments of the calyx and leaves oblong. Seeds  
concave. Obs. 5322. Specimen gathered in corn fields  
between a village on the left bank of the Rhine and  
Cologne.—Obs. 3612. Specimen gathered by Wood-  
ward in Suffolk.—Obs. 12074. Specimen gathered by  
Taylor in fallow fields near Verdun in France.—Obs.  
12075. Specimen gathered by Dr. Johnson in Switzer-  
land.—*Linn. succ.* 7; *sp.* i. 19; *a Willd.* i. 74; *a Roem.*  
& *Schult.* i. 120; *a Spreng.* i. 76; *hal.* 9. *Lam. &*  
*Dec.* iii. 467; *syn.* 210. *Vahl. enum.* i. 83. *Retz. scand.*  
7. *Schrad. germ.* i. 44. *Schult. obs.* 5. *Willd. ber.*  
11; *enum.* i. 23. *Kunth. ber.* 8. *Poll.* i. 18. *Roth.*  
*enum.* i. 55; *germ.* i. 9; ii. *pars* i. 21. *Scop. carn.* i.  
21. *Krock.* i. 30. *Bluff. & Fing.* i. 27. *Succ.* i. 11.  
*Wahl. helv.* 6; *succ.* i. 11. *Host. syn.* 11. *Gmel. bad.*  
i. 41. *Huds.* 7. *Bot. arr.* i. 15; iii. 487. *Smith. brit.*  
i. 25; *engl.* i. 25. *Sibth. prodr.* i. 10. *Schlect. ber.* i. 7.  
*Pollin.* i. 22. *Engl. bot. t.* 26. *Honck.* i. 127. *Asso* 2.

*Moench. marb.* i. 436, describes the capsules as larger than the calyx.

*V. triphylla.* *Host. fl.* i. 18.

*V.* *Hall. hist.* i. 237. n. 551. *Raii syn.* 280. n. 6.

*V. verna folio integro triangulari dentato.* *Vaill. paris.* 201.

*V. verna trifida vel quinquefido folio.* *Tourn. inst.* 145; *paris.* 239. *Vaill. paris.* 201.

*Elatine triphyllus.* *Dalech.* ii. 1240.

*Alsine folio profunde secto.* *Bauh. J.* iii. 367.

*Alsine parva.* *Lob. ic.* i. 464, *repr. in*

*Alsine recta.* *Ger. by Johns.* 612, and *cop. in Park. theatr.* 1260. *Ger. J.* 489.

Pubescent; hairs globiferous. *Stem* simple and subramose at the base, ascending, from 2 to 4 inches long. *Leaves*, the lower ovate, distantly serrate, the upper palmate. *Calyx* quinquepartite, once and twice as long as the peduncles; segments cuneato-oblong and cuneato-linear, the 2 lower somewhat smaller and in one flower twice as short as the 2 upper. *Corolla* blue, just longer than the calyx. *Capsule* obreniform; cells with 6 seeds. *Seeds* obovate, rugose, fulvous and rufous,  $\frac{1}{4}$  and  $\frac{1}{3}$ rd of the tenth of an inch long; back convex with a ridge, transversely rugose; face concave.

*Nat.* of Crimea Romania the north of Spain and Portugal France Switzerland Germany Sweden Norfolk and Suffolk.

#### 4. *Flores corymbosi.*—*Flowers corymbose.*

20. *VERONICA alpina.* *Flores corymbosi.* *Folia* elliptica subcrenata. *Calycis pili acuti.*—*Flowers corymbose.* *Leaves* elliptic subcrenate. *Hairs* of the calyx acute. *Obs.* 3621. Specimens in fl. and fr. from Baron Jacquin.—*Obs.* 12058. Specimen from Vahl.—*Obs.* 12059. Specimen gathered by Dr. Johnson on the Alps of Switzerland.—*Obs.* 12060. Specimen in fr. gathered by Davies in Kew garden.—*Obs.* 12061. Specimen in fr. from Davies gathered in Scotland.—*Linn. suec.* 5; *sp.* i. 15; *a Murr.* 59; *a Willd.* i. 63; *a Roem. & Schult.* i. 100; *a Spreng.* i. 72. *Willd. enum.* i. 20. *Vahl. enum.* i. 64. *Lam. & Dec.* iii. 471; *syn.* 211. *Scop. carn.* i. 18. *Jacq. vind.* 2. *Host. fl.* i.

10; *syn.* 7. *Schrad. germ.* i. 25. *Honck.* i. 97. *Retz. scand.* 6. *Krock.* i. 24. *t.* 3. *Smith. brit.* i. 18; *engl.* i. 19. *Hook. scot.* i. 4. *Wahl. lapp.* 7; *helv.* 4; *carp.* 5; *succ.* i. 7. *Dicks.* ii. 29; *in lin. tr.* ii. 287. *Bot. arr. ed. IV.* ii. 12. (*Asso* 2 is described as glabrous.) *V. Linn. lapp.* 7. *t.* 9. *f.* 4. *Hall. hist.* i. 235. *n.* 544. *t.* 15. *f.* 2. (*All. specim.* 19. *t.* 3, has a racemus, and leaves serrated their whole length.)

*Hairs* fusiform, articulated, acute. *Stem* simple, ascending, hirsute, 3 to 5 inches long. *Leaves* opposite, thin, when in fruit somewhat thicker, crenato-serrate; serrations obtuse, here and there. *Corymbus* roundish, from 2 to 3 tenths of an inch long, when in fruit sometimes a racemus  $\frac{1}{2}$  to  $\frac{1}{4}$  inch long. *Bracteae* elliptico-lanceolate. *Calyx* quadripartite, as long as the pedicel; segments oblongo-lanceolate, equal, trinervose. *Capsule* bilocular, ovali-obcordate,  $1\frac{1}{2}$  as long as the calyx, hirsutulous and hirsute. *Style* twice as long as the emarginature. *Seeds* lenticular, oval and obovate, fulvous, one third of the tenth of an inch long. The paper in which specimens dried stained brownish purple.

21. VERONICA *bellidifolia*. Flores corymbosi. Folia obovata obovato-oblongaque. Calycis pili acuti et globiferi.—Flowers corymbose. Leaves obovate and obovato-oblong. Hairs of the calyx acute and globiferous. *Obs.* 3622. Specimen from Baron Jacquin.—*Obs.* 12057. Specimen gathered by Dr. Johnson in the Alps of Switzerland.

*V. bellidioides.* *Linn. sp.* i. 15, from Burserius herbar.; *nat.* 57; *mant.* 316; *a Murr.* 59; *a Willd.* i. 60; *a Roem. & Schult.* i. 99; *a Spreng.* i. 72. *Vahl. enum.* i. 61. *Willd. enum.* i. 20. *Lam. & Dec.* iii. 470; *syn.* 211. *Roth. enum.* i. 39. *Scop. ann.* ii. 42. *Honck.* i. 93. *Wahl. helv.* 4. *Host. fl.* i. 8; *syn.* 6. *Willich. ill.* 38. *n.* 51. *Schrad. germ.* i. 27. *Krock.* i. 14. *t.* 2. *Hort. kew. ed. I.* i. 21; *ed. II.* i. 29. *Moench. carb.* ii. 156.

*V. Hall. hist.* i. 235. *n.* 543. *t.* 15. *f.* 1.

*V. alpina.* *Bauh. Cesp. prodr.* 116. no fig.—*Raii hist.* i. 847.



Villose; hairs articulated, acute and globiferous. Stem ascending, 3 and 4 inches long. Leaves obtusely serrate, the lower obovate and oval, similar to those of *V. officinalis*, in other plants cuneato-oblong, those of the stem obovato-oblong, in 3 pairs. Corymbus convex hemispheric and ovate. Pedicles opposit. Calyx quadripartite; segments obovato-oblong, nearly equal; hairs acute and obovate at the end.

5. *Racemi terminales bracteati*.—*Racemi terminal bracteate*.

22. *VERONICA fruticulosa*. *Racemi terminales bracteati laxi*. Folia oblonga ellipticaque, medio serrata integerrimaque. Caulis frutescens, ascendens.—*Racemi terminal bracteate loose*. Leaves oblong and elliptic, serrate in the middle and entire at the margin. Stem frutescent, ascending. *Obs.* 3618. Specimen in fr. from Baron Jacquin.—*Obs.* 12349. Specimen in fl. and fr. gatherd by Mr. Baker on the Schejdach in Switzerland.—*Obs.* 12076. Specimen gatherd by Dr. Johnson in Switzerland.—*Obs.* 3620. Specimen in fl. and fr. gatherd in Upton garden.—*Obs.* 5751. 11107. 6671. 10147. 11108. Specimens gatherd in Tipton Trentham Codnor and Darley gardens. 30 May 8 July 25 Sept.—*Linn. sp.* i. 15; (apparently from Hall.) ii. 1676; *mant.* 316; *a Murr.* 59. *Honck.* i. 94. *V. Hall. hist.* i. 235. n. 545.

Both varieties stain the papers in which kept of a brownish purple.

*a pauciflora*. *Racemi* with few flowers. Pubescent with acute hairs. Capsule elliptic, somewhat longer than the calyx. Corolla glabrous. *Obs.* 3618. 5751. 1107.

*V. fruticulosa*. *Honck.* 194 *β Huds.* 4. On Ben Nevis.

*V. saxatilis*. *Linn. fl. suppl.* 83; *a Willd.* i. 62; *a Roem. & Schult.* i. 99; *a Spreng.* i. 72. *Sut. a Heg.* i. 8. Calyx described as glabrous.—*Schrad. germ.* i. 24. *Willd. enum.* i. 20. *Hook. scot.* i. 5. *Lam. & Dec.* iii. 469; *syn.* 210. *Link. enum.* i. 23. *Pollin.* i. 14. *Host. fl.* i. 9; *syn.* 7. *Vahl. enum.* i. 63. *Hort. kew. ed. T.* i. 21. *Dicks.* ii. 29; *in lin. tr.* ii. 288. *Bot. arr.* i. 10. note †. *Smith. brit.* i. 17; *engl.* i. 19. *Scop. carn.* i. 11; *ann.* ii. 42. *Rati hist.*

i. 848; *eur.* 261. *Bauh. J.* iii. 284. *Wahl. helv.* 4; *carp.* 5; *lapp.* 6 with the exception of the capsules, described as glabrous is probably a distinct variety.

V. *Hall. hist.* i. 235. n. 545  $\beta$

V. *alpina frutescens.* *Scheuch. J. Jac. it.* i. 47.

V. III. *Clus. pann.* 821, *repr. in*

V. *fruticans.* *Clus. hist.* i. 347, and *cop. in Park. theatr.* 551. *Jacq. vind.* 2. 200. *Ger. by Johns.* 628, *cop. in*

V. *minor.* *Park. theatr.* 551. *In fr.*

V. *alpina fruticans, serpylli majoris folio.* *Pluk. alm.* 384. t. 232. f. 5.

V. *alpina fruticans, serpylli minoris folio.* *Pluk. alm.* 384. t. 232. f. 6 is probably a variation.

*Stems* ascending, 3 to 6 inches long. *Leaves* oblong and lanceolate, obtusely subserrate and entire at the margin, those of the barren shoots obovate, oblong, entire at the margin, many times smaller; margin of the leaves microscopically pubescent; costa pubescent underneath. *Racemi* corymbose, terminal, solitary, to  $1\frac{1}{4}$  inch long, with about 6 flowers. *Pedicles* about as long as the bracteae; those of the fruit longer than the bracteae. *Calyx* quadripartite and quinquepartite; hairs incurvate, acute. *Corolla* blue,  $1\frac{1}{4}$  as long as the calyx, sometimes quinquepartite, 7 tenths broad. *Obs.* 5751. 11107.—*Stems* 3 to 5 inches long; pubescent; hairs incurvate. *Leaves* oblong and obovato-oblong, serrate and obsoletely serrate about the middle, pubescent at the margin. *Corymbi* terminal, with 3 flowers. *Capsules* one third and one fourth longer than the calyx; pubescent. *Obs.* 3618.—*Stems* ascending 3 and 4 inches long, pubescent. *Racemi* with from 4 to 7 flowers. *Capsules* elliptic, pubescent, somewhat longer than the calyx; cells polyspermous. *Seeds* orbicular and oval, fulvous, somewhat more than the third of a tenth of an inch long. *Obs.* 12353.

$\beta$  *elongata.* *Racemi* elongate. Pubescent with globiferous hairs. Capsule oval, mostly about as long as the calyx. Segments of the corolla pubescentulous on the back near the ends. *Obs.* 10147. 3620. 11108. 6671. 12076.

*V. fruticulosa.* Linn. *a* Willd. i. 61; *a* Roem. & Schult. i. 99; *a* Spreng. i. 72. Wulf. ap. Jacq. coll. iv. 22. t. 5. Hook. scot. i. 5. Vahl. enum. i. 62. Schrad. germ. i. 22. Smith brit. i. 18; engl. i. 18. Hort. kew. ed. I. i. 21; ed. II. i. 30. Host. fl. i. 9; syn. 6. Bot. arr. i. 10. Retz. scand. 6. Link. enum. i. 23. Wahl. helv. 4. Sut. ab Heg. i. 7. Pollin. i. 14. Honck. i. 94 *a* Lam. & Dec. iii. 469; syn. 210, but described as glabrous. (Mill. Ph. dict. n. 13, & Krock. i. 26, are different plants.)

*V. frutescens.* Scop. carn. i. 19; ann. ii. 42.

*V. Hall. hist.* i. 235. n. 545 *a* t. 16.

*Stems* ascending, branched at the base; 6 to 9 inches long; hairs incurvate. *Leaves* opposit, sessile, pubescent at the margin and along the costa underneath, canaliculate, almost conduplicate, obtusely serrate, the largest about the middle of the stem; hairs incurvate, the ends pointing towards the ends of the leaves. *Racemus* to 5 inches long. *Peduncle* with 1 and 2 branches at the base, pubescent; hairs of the peduncle straight, clavate at the end; those of the branches incurvate, acute. *Pedicles* terete, longer and shorter than the bracteae, pubescent; hairs clavate. *Bracteae* entire at the margin; margin pubescent; hairs of the lower acute, of the upper clavate.—*Calyx* quinquepartite, pubescent on the outside and at the margin; segments spatulate, the uppermost as small again and very small, the 2 lowermost somewhat larger than the lateral ones; hairs clavate. *Corolla* one third longer than the calyx; segments ovato-subrotund, incumbent, white and fleshcoloured, the 3 upper with longitudinal pinkish purple lines; tube very short, greenish. *Nectarium* orbicular, glandular, with 4 crenae, yellow, surrounding the base of the germin. *Capsule* half grown ovate, obtuse, comprest, pubescent; hairs acute & clavate; cells polyspermous. *Obs.* 6671.—*Pedicles* pubescent; hairs incurvate, acute, with a few clavate hairs. *Calyx* pubescent; segments clavato-lanceolate; hairs incurvate, acute, those of the lower part of the segments intermixt with clavate hairs; clavate hairs longer, slightly curv'd. *Obs.* 11108.—*Germin* oval, pubescent; hairs acute and glo-

biferous. *Style* filiform. *Stigma* orbicular. *Vasa deferentia* 2. *Capsule* elliptic as long as and sometimes longer than the calyx; valves 4, shining within. *Seeds* flat, obovate and oval, emarginate and retuse at the base, fawn-coloured, microscopically tuberculate; tubercles rounded. *Tunic* transparent, colourless, microscopically tuberculate. *Hilum* tawny. *Chalaza* yellow, a little above the center of the seed. *Perisperm* cartilaginous, granular, whitish; granules middlesized. *Corculum* clavate, flat, straight, centripetal, in the middle of the lower part of the perisperm, tawny, one third as long as the perisperm, granular; granules minute. *Cotyledons* oval, flat, adpressed. *Rostellum* linear, somewhat longer than the cotyledons; granules in lines. *Obs.* 10147.—*Branch* 4½ inches long, naked below the end. *Leaves* oblong, the upper linear. *Flowers* corymbose. *Calyx* quadripartite; segments lanceolate, pubescent; hairs globiferous. *Germen* hirsute. *Obs.* 12076.

*Nat.* of Italy Switzerland Hungary France Scotland and Norway.

23. *VERONICA serpyllifolia*. Racemi terminales foliosi bracteatique. Caulis pilis incurvis pubescens. Pedicelli pilis acutis pubescentes. Folia ovalia oblonga obovato-orbiculariaque, subserrata integerimaque, glabriuscula. Capsulae obreniformes, pilis globiferis. Corolla calycis longitudine.—Racemi terminal leafy and bracteate. Stem pubescent with incurvate hairs. Pedicles pubescent. Leaves oval oblong obovate and orbicular, subserrate and entire at the margin, nearly glabrous. Capsules obreniform, with globiferous hairs. Corolla as long as the calyx. *Obs.* 5319. In fields.—*Linn. suec.* 6; *sp.* i. 15; *a Willd.* i. 64; *a Roem. & Schult.* i. 102; *a Spreng.* i. 72; *hal.* 7. *Vahl. enum.* i. 65. *Willd. enum.* i. 21. *Link. enum.* i. 24; *in tracts* 48. *Lam. & Dec.* iii. 471; *syn.* 211. *Schrad. germ.* i. 21. *Roth. enum.* i. 35; *germ.* i. 6; ii. *pars* i. 9 *a Poll.* i. 9. *Retz. scand.* 6. *Bluff & Ping.* i. 14. *Wahl. lapp.* 5; *helv.* 5; *carp.* 6; *ups.* 4; *scan.* i. 8. *Host. fl.* i. 10; *syn.* 7. *Bieb.* i. 9. *Scop. carn.*

i. 12. *Moench. marb.* i. 434. *Krock.* i. 15. t. 4. A. t. 4. B. *Lightf.* i. 73; ii. 1142. *Hook. scot.* i. 4. *Smith. Brit.* i. 19; *engl.* i. 20. *Walc. t. Bot. arr.* i. 11. *Fl. lond.* i. t. *Seb. & Maur.* 7. *Sibth. ex.* 5; *prodr.* i. 7. *Schlect. ber.* i. 6.

V. *Linn. lapp.* 6. n. 6. *Hall. hist.* i. 236. n. 546. *Bauh. J.* iii. 285.

V. *pratensis serpyllifolia.* *Tourn. paris.* 541. *Vaill. paris.* 201.

V. *pratensis.* *Raii syn.* 279. *Dod.* 41, repr. in

V. *minor.* *Lob. obs.* 250; *ic.* i. 472, and *Ger. by Johns.* 267. *Ger. J.* 503.

V. *recta mas.* *Ger. J.* 502.

*Bracteae* elliptic, somewhat shorter than the flowers. *Stigma* lenticular. *Capsules* comprest, fulvous,  $1\frac{1}{2}$  as long as the permanent style. *Seeds* oval and subovate, fulvous, numerous; the 4th of the tenth of an inch long; back convex; face flat with a longitudinal ridge and a foveola in the center.

*Nat.* of Bithynia and of Europe from Constantinople and the cooler parts of Spain and Portugal to Scotland and Lapland.

$\beta$  *rotundifolia* (Variation) Leaves orbicular. *Obs.* 10410. Specimen gathered by Mr. Winch on the Cheviot hills in Northumberland.—*Obs.* 2411. In fields.—*Obs.* 3614. Specimen gathered by M. Jungans probably in Hesse.—*Hook. scot.*  $\beta$

V. *humifusa.* *Dicks. in lin. tr.* ii. 288.

V. *alpina.* *Lightf.* i. 72; ii. 1138. *Bot. arr.* i. 10. note.

Leaves thinner than in any other specimen. *Obs.* 3614.

24. VERONICA *Ponae.* Racemus terminalis bracteatus, pilis capitatis pubescens. Caulis pubescens simplex. Folia ovata sessilia hirsuta. Stigma orbiculare.—Racemus terminal bracteate pubescent; hairs capitate. Stem pubescent simple. Leaves ovate sessile hirsute. Stigma orbicular. *Obs.* 3555. Specimen gathered by Broussonet in the Pyrenees.—*Gou. ill.* 1. t. 1. f. 1. *Vahl. enum.* i. 78. *Lam. & Dec.* iii. 469; v.

389; syn. 210. *Linn. a Willd.* i. 61 a; *a. Roem. & Schult.* i. 96; *a. Spreng.* i. 72. *Schrad. ver.* 84: *Link enum.* i. 23: *Smith in cycl.* xxxvii. n. 64.

*V. sive Chamaedrys spuria latifolia. Pluk. alm.* 383; *phyt. t.* 233. f. 2 in fr.

*Chamaedrys alpina. Park. theatr.* 106, *cop. from*

*V. petraea. Bauh. J.* iii. pars. ii. 289. (*Pluk. phyt. t.* 233. f. 3 has alternat petiolate roundish leaves & nearly sessile flowers.)

*V. All. specim.* 19. t. 3. f. 3 is described as having a subcorymbose racemus and leaves nearly glabrous on the face.)

*Stem* 6 inches long, leafy. *Leaves* serrate, obtuse and subobtuse, opposit, an inch long; hairs articulated, acute. *Racemus* pedunculate,  $1\frac{1}{2}$  as long as the leaves. *Bracteus* oblongo-lanceolate. *Pedicles* filiform, longer than the bracteae. *Calyx* quadripartite; segments oblongo-lanceolate, trinervose, the 2 lower one fourth longer. *Corolla* rotate, quadripartite, one third longer than the calyx; segments oval, subacute, the lowermost rather smaller. *Pistil* as long as the corolla. *Germes* globose, pubescentulous. *Style* filiform, as long as the corolla.

25. *VERONICA pallida.* Racemus terminalis bracteatus pubescens. Folia lanceolata, serrulata repandaque, inferiora opposita. Caulis simplex.—Racemus terminal bracteate pubescent. Leaves lanceolate serrulate and repandose, the lower opposit. Stem simple. *Obs.* 9915. 10148. In Darley Broomhouse and Newbold gardens. 18 May to 10 July; in fr, 16 July and Sept.—*Horn.* i. 17.

*V. gentianoïdes. Vahl. enum.* i. 62. *Willd. enum.* i. 20. *Bieb.* i. 9; iii. 10. Corolla pale blue.—*Hort. kew. ed. II.* i. 29. *Linn. a Spreng.* i. 72. *Smith. in lin. tr.* i. 194; *in cycl.* xxxvii. n. 18. *Sibth. prodr.* i. 6.

*Root* terete, oblique; lateral fibres thick, matted. *Stem* ascending and erect, at first flexuose, rigid, 1 to 2 feet long, glabrous below, pubescent above. *Leaves* trinervose and quinquenervose, acute and obtuse, flaccid, the lower glabrous, the upper pubescentulous

denticulate in the middle sometimes near the end; teeth sometimes rounded; floral leaves recurvate, sparse. *Racemus* 3 to 16 inches long, erect, flowering upwards, 3 to 14 flowers in blossom at once. *Peduncles* patent, after flowering adpress. *Bracteae* ensato-lanceolate. *Calyx* quadripartite, pubescent, bluish at the base; segments trinervose; 2 lower ensato-oblong, nearly twice as long as the 2 upper; 2 upper oval; in other plants segments equal linear-lanceolate; hairs acute and capitate; heads obovate. *Corolla* rotate, at first greyish blue, becoming in a course of years bluish white; tube and mouth green, pubescent within; limb  $6\frac{1}{4}$  tenths of an inch broad, very unequally quadripartite; upper segment broadly ovate, entire and emarginate; veins purple at the base, blue above; lateral segments subrotund, nearly as narrow again, in other plants nearly as broad as the upper, with blue veins; lowermost segment oval, nearly 4 times narrower than and twice as short as the upper segment. *Filaments* white. *Antherae* oval, bifid at the base, violet. *Pollen* white. *Germe* hirsute; hairs crowded, capitate; heads obovate. *Style* as long as the stamina, thickening upwards, whitish at the base, blue above. *Stigma* hemispheric, purple. *Vasa deferentia* 2. *Capsule* obreniform, comprest, bilocular, pubescent; cells monospermous and dispermous. *Seeds* cartilaginous, flat, orbicular obovate & elliptic, undate, a tenth long, not altered in shape by steeping in hot water; back subconvex, subcarinate; face subconcave. *Tunic* membranaceous, closely adhering to the perisperm. *Hilum* at the margin, rufous. *Chalaza* rufous, orbicular, in the middle of the face of the seed. *Perisperm* granular, cartilaginous, whitish. *Corculum* clavate, comprest, whitish tawny, embedded in the perisperm near the base, one fourth as long as the perisperm, granular; granules minute. *Cotyledons* 2, adpress, oval. *Rostellum* terete, as long as the cotyledons, pointing to the hilum; granules in lines.

26. *VERONICA maritima*. Racemi terminales, bracteati. Capsulae ovaes, emarginatae. Folia terna quaterna oppositaque, lanceolata ovato-lanceolata corda-

to-lanceolataque. Calyces pedicellos subaequant, corollae tubi longitudine.—Racemi terminal, bracteate. Capsules oval, emarginate. Leaves in threes in fours and opposit, lanceolate ovato-lanceolate and cordato-lanceolate. Calyces as long as the tube of the corolla, as long as and shorter than the pedicles. *Obs.* 3592. Specimen from Baron Jacquin, gathered on Schneeberg near Vienna.—*Obs.* 3603. Specimen from M. Geltibrand, gathered near Vienna.—*Obs.* 3594. Specimen from M. Geltibrand.—*Obs.* 1596. In the garden of the Golden Cross Inn in Bromsgrove in Worcestershire.—*Obs.* 1742. 3632. 3634. In Perry hill nursery. 21 July.—*Obs.* 3629. In a garden at Worcester. 29 July.—*Obs.* 4070. 9942. 11210. In a garden 5 & 19 Aug.—*Obs.* 4071. In Durrant hall garden in Chesterfield.—*Obs.* 5093. 7513. 7518. In Norton garden.—*Obs.* 8139. 10622. In Darley garden. 25 Aug. both probably from the same root.—*Obs.* 9716. Specimen nearly out of flower, gathered in Trentham garden. 25 Sept.—*Obs.* 11839. In a garden near Mansfield. Aug. & Sept.—*Obs.* 9306. In the garden of a cottage in Watsheff near Chesterfield. 15 Aug.—*Obs.* 11209. 12083. 10623. In fl. and fr. in Darley garden, from seeds from Van Diemens land. 14 Aug.—*Linn. succ.* 4; *lach.* ii. 139; *sp.* i. 13; *a Murr.* 58; *a Rosm. & Schult.* i. 87; *a Spreng.* i. 71. *Willd. enum.* i. 18. *Link. enum.* i. 19. *Retz. obs.* i. 9; *scand.* 5. *Smith in cycl.* xxxvii. n. 4. *Hort. kew. ed. 1.* i. 18. *Mill. Ph. dict.* *Vahl. enum.* i. 56. *Wahl. ups.* 3; *lapp.* 5, under n. 5; *succ.* i. 7. Scarcely differs from *V. longifolia* unless in size and narrowness of parts attributable to its maritime situation.

*V. longifolia.* *Wallr. sched.* 8. *Lam. & Dec.* iii. 468; *syn.* 210. *Host. fl.* i. 4; *syn.* 4. *Wahl. lapp.* 3; *succ.* i. 6. *Willd. enum.* i. 17.

*V. Linn. lapp.* 5. *Boerk.* i. 224. n. 3.

*a lanceolata.* Leaves lanceolate, in threes and opposit. Stem pubescent. *Obs.* 3592. 3603. 3594.

*V. maritima.* *Schrad. ver.* 29. t. 1. f. 1.

*Stem* hoary in places. *Leaves*, the lower somewhat ovate at the base, unequally serrate, serrate to the very



end; margin entire at the base; costa on the face pubescent, hoary; serrations triangular, acute, just perceptibly acuminate. *Bracteas* ensate. *Spikes* many, crowded. *Rachides* hoary. *Calyx* quadripartite and quinquepartite, pubescent; segments ensate and ovato-triangular; 2 lower somewhat longer than the 2 upper; hairs articulated. *Corolla*  $1\frac{1}{2}$  as long as the calyx, 2 tenths of an inch long; segments obovate. *Germen* lenticular, subemarginate, glabrous. *Capsule* roundish, longer than the calyx. *Seeds* oval, fulvous. *Obs.* 3592.

β *glabriuscula*. Leaves in threes and opposit lanceolate glabrous and subglabrous. *Obs.* 3629. 3594.

*V. maritima*. *Vahl. enum.* i. 56, becoming nearly wholly glabrous from cultivation.

*Stem* glabrous, sometimes slightly pubescent above. *Leaves* in threes and opposit, the uppermost nearly opposit and alternat, in some plants alternat, unequally serrate; margin entire for 4 tenths of an inch from each end; serrations unequal, acute. *Corolla* blue,  $2\frac{1}{2}$  tenths of an inch long. *Antherae* yellowish, without pollen. *Germen* glabrous and with a few hairs at the end.

γ *gracilis*. (Variation) Leaves lanceolate opposit unequally serrate; face nearly glabrous; back pubescent. *Obs.* 1596. 11839.

*V. assurgens*. *Ger. J.* 503.

*Stem* to 27 inches long, glabrous below, pubescent above, slender, one tenth of an inch broad. *Leaves*  $\frac{1}{2}$  inch broad. *Racemi* alternat, sparse; lateral racemi shorter than the terminal one. *Bracteas* ensate. *Calyx* quadripartite, sometimes quinquepartite, nearly glabrous; 2 upper segments ovato-triangular, 2 lower ensate; somewhat longer. *Corolla* infundibulate purplish violet,  $1\frac{1}{2}$  tenth of an inch long, 4 times as long as the calyx; throat hirsute; limb twice as long as the tube; quadripartite; upper segments ovate; lower lip tripartite; segments nearly equal. *Stamina* 2, inserted below the 2 upper commissures. *Germen* oval. *Style* filiform, purplish violet. *Stigma* simple. *Racemi* in fruit strict, to 6 inch long. *Capsule* oval, acute, with a furrow on each side, at length emarginate.

nate, oval and obreniform; somewhat longer than the calyx; somewhat more than a tenth of an inch long; cells polyspermous, opening at the margins; margins acute. *Seeds* oval, plano-convex, fulvous. *Obs.* 11839.

♂ *pedicellaris*. (Variation) Leaves lanceolate, in threes opposit and alternat; serrations acuminate. Pedicles as long as and longer than the calyx and bracteæ. *Obs.* 4070. 7513. 1596.

*V. arguta*. *Schrad. ver.* 22. t. 2. f. 2, descr. cop. in *Vahl. enum.* i. 360. *Willd. enum.* i. 16.

*V. spuria*. *Roth. germ.* i. 5; ii. *pars* i. 5. *Linn. sp.* i. 13; a *Willd.* i. 56; a *Roem. & Schult.* i. 89, and *Schrad. ver.* 36. t. 2. f. 4, seems very nearly allied to it.—(*Linn. a Spreng.* 71 is described as having ovato-oblong leaves.)

*Stems* 3 feet long, erect, terete. *Flowering branches* axillary, in threes, glabrous. *Leaves* cuneate and sub-ovate at the base, unequally serrate to the end and entire in the margin at the end, not shining, to 3 inches long, in some plants alternat, when the uppermost and those of the branches opposit. *Racemi* terminal, rather lax, virgate, fastigiate, from 3 to 9 inches long. *Pedicles* filiform, pubescent. *Bracteæ*, the lower ensate, longer than the pedicles, the upper linear setaceous, shorter than the pedicles. *Calyx* quadripartite; segments ensate, obsoletely trinervose, the 2 lower somewhat longer, pubescent at the margin with very short incurvate hairs. *Corolla* purplish blue,  $2\frac{1}{4}$  tenths of an inch long; tube somewhat shorter than the calyx, white at the base, hirsute within; segments oval and ovate, obtuse, somewhat longer than the tube, the uppermost subrotundo-oval, concave. *Nectarium* surrounding the base of the germen. *Stamina* somewhat longer than the corolla. *Antheræ* blue. *Pollen* straw-coloured. *Pistil* as long as the filaments. *Style* purple. *Stigma* lenticular. *Capsules* oval emarginate.

♂ *lanceolato-alba*. (Variation) Leaves lanceolate, sparse; unequally serrate; serrations acuminate. *Corolla* white. *Obs.* 10622.

*Branches* pubescent; hairs flexuose, crowded, incurvate. *Pedicles* pubescent. *Calyx* pubescent at

the margin, that of the fruit nearly twice as long; segments oblong. *Corolla* somewhat more than twice as long as the calyx; tube as long as the calyx; throat villose; limb quadriparite; segments equal, oval and ovate. *Stamina* longer than the corolla. *Pistil* shorter than the corolla. *Germen* ovate, glabrous. *Style* filiform. *Stigma* obtuse; vasa deferentia 2. *Capsule* stil green, obovato-subrotund, emarginate, slightly comprest, somewhat longer than the calyx; cells with 2 and 3 seeds.

2 *conduplicata*. (Variety) Leaves lanceolate, incisoserrate, subconduplicate, glabrous. *Obs.* 1742.

*V. complicata*. *Vahl. enum.* i. 53. *Willd. enum.* i. 18. *Linn. a Roem. & Schult.* i. 89; *a Spreng.* i. 71.

*Stem* erect, simple, glabrous below, rorid, pubescent above, terete with obsolete obtuse angles, from 1 to 2 feet long. *Branches* very short, axillary, from nearly the base of the stem. *Flowering branches* numerous, from the upper whorls of leaves, erect, mostly in threes. *Leaves* in threes in some plants in fours, those of the branches opposit, petiolate, declinate, deeply and unequally serrate, and in some plants towards the base incisoserrate; margin within  $\frac{1}{4}$  or  $\frac{1}{2}$  of an inch of the end entire; serrations acute and acuminate. *Racemi* terminal, erect, those of the branches shorter than that terminating the stem. *Rachis* terete, pubescent. *Bracteae* solitary, ensate, entire at the margin, pubescent, the lower longer than the flowers, the upper as long as the calyx. *Calyx*, segments linear-subulate, with a longitudinal line on the inner side, the 2 upper somewhat shorter; hairs articulated. *Corolla* purplish blue, 2 lines long, when dry microscopically tuberculate with opaque tubercles; tube whitish at the base; throat closed by whitish hairs; segments rounded. *Stamina* purplish blue. *Antherae* bilocular, without pollen. *Pistil* one third longer than the corolla. *Germen* ovate, glabrous, green. *Style* purplish blue. *Stigma* obtuse, somewhat capitate, purplish blue.

2 *albo-conduplicata*. Leaves ovato-lanceolate, pubescent. Stem pubescent. *Germen* pilose at the end. *Corolla* white. *Obs.* 3624. In a garden.

*S arguta*. (Variation) Leaves lanceolate and ovato-lanceolate, unequally and acutely serrate; serrations acuminate. Calyx pubescent at the margin with incurvate hairs; segments ensate and triangulari-ensate. Capsules obcordate. *Obs.* 12083. 10623. 11209.

Pubescent; hairs incurvate, crowded. *Stem* terete, purplish brown, glabrous below, erect, 14 inches long and upwards. *Leaves* verticillate, 3 in a verticillus; the lower subglabrous on the upper side, the upper pubescent; laminae 2 inches long. *Pedicles* filiform. *Bracteae* setaceo-lanceolate, ascending, as long as the pedicles. *Corolla*  $1\frac{1}{2}$  tenth of an inch long, violet blue; segments oblong, concave. *Stamina* longer than the corolla. *Germen* glabrous. *Capsules* nearly twice as long as the calyx; cells polyspermous. *Seeds* oval fulvous, one third of the tenth of an inch long; back convex; face concave. *Obs.* 12083. 10623.—Lower capsules fertile but no pollen in the stamina of the flowers now in blossom. 12 July. Similar to *V. maritima crassifolia*, but the calyx larger and the hairs incurvate.

*elliptica*. Leaves elliptico-lanceolate ovato-elliptic ovato-lanceolate and cordato-lanceolate, unequally serrate; serrations acuminate. *Germen* pilose at the end. *Obs.* 3632. 3634. 9942.

*V. maritima*  $\beta$  *Linn. a Willd.* i. 55. *Vahl. enum.* i. 56.

*V. supina*. *Ger. J.* 503.

*Flowering branches* often longer than the stems, & when fully grown fastigate. *Leaves* serrate to very near the end, nearly glabrous on the upper surface, microscopically pubescent underneath,  $3\frac{1}{2}$  inches long, 1 broad; the lower of the stem and branches cordato-lanceolate, the upper of the stem and branches ovato-cordate; ovate leaves 2 inches long, 9 tenths of an inch broad. *Bracteae* setaceo-lanceolate. *Calyx* quadripartite and tripartite; segments lanceolato-subulate, the 2 lower one fourth longer than the rest, one fourth shorter than the bractea. *Corolla* of the branches in Aug. just longer than the calyx,  $1\frac{1}{2}$  tenth of an inch long; tube of a flower earlier in the year shorter than the calyx; limb nearly twice as long as

the tube; segments ovate. *Capsule* obovate, about as long as the calyx. *Seeds* oval, flat.

- \* *hebetata*. Leaves ovato-lanceolate, pubescent; serrations rather obtuse. Stem pubescent. Germen pilose at the end. Corolla pale purplish blue. *Obs.* 12374. In a garden.

*Stem* erect, polystachyous. *Leaves* recurvate, doubly serrate. *Calyx*, segments ensate and ensate-oblong. *Corolla* hypocraterine, pale purplish blue; tube cylindric, longer than the calyx; segments oblong, 3 upper cucullate, the lowermost linear. *Germen* hirsute. *Style* deflex. *Capsule* stil green, oval emarginate, subcomprest, hirsutulous.

- \* *crassifolia* (Variation) Leaves elliptic lanceolate and ovato-lanceolate, pubescent. Stamina abortiv. *Obs.* 4071.

*Stem* to 3 feet 10 inches long, erect and ascending, pubescent. *Leaves* thickish, dark green, entire at the margin from 3 to 7 tenths of an inch below the end, those of the stem to 5 inches long, to 1½ inch broad; those of the flowering branches lanceolate, to 2½ inches long, to 9 tenths of an inch broad. *Racemi* to a foot long. *Calyx* quadripartite and sexpartite, pubescent, becoming half as large again; hairs straightish; segments lineari-lanceolate. *Corolla* purplish violet, 3 tenths of an inch long; segments concave, mostly inflex, oblongo-ovate; throat bearded. *Stamina* purplish, inserted into the tube of the corolla below the commissures of the upper segment. *Filaments* very short. *Antheras* elliptic, without cells or pollen. *Nectarium* orbicular, concave, fleshy, green, surrounding the base of the germen, very short. *Germen* ovate, pilose, when growing on a mass of earth elevated ½ a foot above the level of the ground glabrous or with a single hair, in other parts of the garden becoming somewhat larger with 2 or 3 hairs at the end; hairs jointed, attenuate. *Capsule* stil green, oval, retuse, subcomprest, 1½ and twice as long as the calyx, 1½ tenth of an inch long, often with 1 seed in the hot summer of 1826.—*Seed* oblongo-oval, fulvous, reticulate, ¼ tenth of an inch long; back convex; face concave. Are these

seeds fertilised by the pollen of other species or varieties by bees. I have never hitherto found pollen. The deep blue of the corolla has sometimes induced me to believe it a hybrid produced between *V. maritima* and *spicata*.

μ *media* (Variation) Leaves lanceolate, opposit and in threes, unequally serrate; serrations acuminate. Segments of the calyx ovato-triangular. *Obs.* 9716. In fr.

*V. media.* *Schrad. germ.* i. 17; *ver.* 23. *t.* 1. *f.* 2. Leaves and fr.—*Vahl. enum.* i. 359. *Willd. enum.* i. 16. *Sweet hort.* 308.

(*V. longebracteata* α *Link enum.* i. 20. is described as having leaves with the margin entire at the end.)

Leaves pubescent, those of the stem in threes, of the branches opposit. *Racemi* 4½ to 11 inches long. *Calyx* quadripartite, villose; segments trinervose; hairs articulated. *Capsules* bilocular, obcordate, longer than the calyx; cells polyspermous. *Seeds* oval, compressed, convex on the back, concave and convex with a slight keel on the face, yellowish tawny, microscopically reticulate, somewhat more than one third of the tenth of an inch long. *Hilum* rufous black near the base on the facial side. *Chalaza* a rufous black dot half way between the center and the end of the facial side which is opposite to the hilum, with a line extending to the hilum. *Perisperm* granular, brownish white; granules large. *Corculum* lineari-oblong, whitish, in the middle of the perisperm, half as long as the perisperm, granular; granules small. *Cotyledons* 2, oblong. *Rostellum* oblong, straight, as long as and somewhat narrower than the cotyledons; granules in lines.

ν *pubescens* (Variation) Leaves cordato-lanceolate, doubly serrate, pubescent, in fours. Germen glabrous. *Obs.* 9306.

*Stem* erect, glabrous below, pubescent above, terete, solid, simple; hairs incurvate. *Leaves* attenuate, inciso-serrate, microscopically pubescent on the upper side, pubescent underneath, trinervate at the base, thin, pale green, soon becoming flaccid; hairs incurvate. *Racemi* 1 to 7, erect, attenuate. *Bracteae* su-

bulate, pubescent. *Pedicles* thrice as short as the bracteae. *Calyx* quadripartite, thrice as long as the pedicles, pubescent with very short incurvate hairs; segments lineari-lanceolate, the 2 lower somewhat longer than the 2 upper. *Corolla* twice as long as the calyx, 2 tenths of an inch long, tubular; tube bluish white; limb quadripartite, blue, erect; segments oval, concave, erect, the uppermost just sensibly larger, the lowermost just sensibly smaller; throat bearded. *Stamina* 2, erect, longer than the corolla. *Filaments* blue, inserted into the base of the upper segment of the corolla. *Antherae* ovate, bilocular, blackish blue. *Pollen* strawcoloured. *Pistil* longer than the corolla. *Germen* ovate. *Style* blue. *Stigma* simple.

‡ *cordata* (Variation) Leaves cordato-lanceolate, in threes, unequally serrate, microscopically pubescent. *Germen* glabrous. *Obs.* 5093. 11210.

*V. maritima.* *Roth. germ.* i. 5; ii. *pars* i. 6. *Willd. ber.* 9; *enum.* i. 55. *Moench. marb.* i. 433. *Bieb.* i. 7.

*V. longifolia.* *Schrad. ver.* 26. t. 2. f. 1. *Spreng. hal.* 6. *Wallr. ann.* 5; *sched.* 8 a *Kunth. ber.* 4. *Spreng. hal.* 6. t. 1. f. 3 a portion of the stem with 3 leaves.

*V. elatior.* *Willd. enum.* i. 17. *Bieb.* iii. 8.

*Pseudolysimachium caeruleum.* *Dod. ed. I.* 87, *repr. in ed. II.* 86.

*Lysimachia caeruleo flore.* *Clus. hist.* ii. 52,

*Lysimachia caerulea.* *Lob. obs.* 186; *ic.* i. 344, & *Ger. by Johns.* 477, & *cop. in Dalech.* i. 1060, & *Park. theatr.* 546.

*V. spicata recta.* *Bauh. J.* iii. *pars* ii. 284. *Raii hist.* i. 845.

*Stem* glabrous below, pubescent above. *Leaves* apparently glabrous. *Racemi* several, sometimes 1 *Calyx* quadripartite; segments nearly equal. *Corolla* blue,  $2\frac{1}{4}$  tenths of an inch long. *Pollen* strawcoloured. *Obs.* 5093.—*Racemi*, the lateral racemi verticillate, in a verticillus. *Corolla* violet, quadrifid, with 2 cuneiform segments in the place of stamina. *Obs.* 11210.

o *albo-cordata.* (Variation) Leaves cordato-lanceolate, in threes, unequally serrate, glabrous. *Germen* glabrous. *Corolla* white. *Obs.* 8139. 7518.

*V. glabra*. *Schrad. ver.* 25. t. 1. f. 4, leaves and calyx; descr. top. in *Vahl. enum.* i. 358 & *Linn. a Roem. & Schult.* i. 89; a *Spreng.* i. 71. *Willd. enum.* i. 17  $\beta$  *Horn.* i. 17. var.

Glabrous, with a few scatterd hairs above. *Petioles* subciliate. *Bracteae* and *pedicles* hirsutulous. *Calyx* quadripartite, hirsutulous. *Germen* globular. *Nectarium* glandular, green, surrounding the base of the germen.

27. *VERONICA incarnata*. *Racemi* terminales, bracteati. *Folia* opposita subovato-lanceolataque, inaequaliter obtuseque usque ad apicem serrata, pubescentula canaliculata. *Caulis* pubescens. *Pedicelli* vix calycelongiores. *Germen* apice pilosum.—*Racemi* terminal bracteate. *Leaves* opposit, subovato-lanceolate and lanceolate, unequally and rather obtusely serrate to the end, pubescentulous, canaliculate. *Stem* pubescent. *Pedicles* just longer than the calyx. *Germen* pilose at the end. *Obs.* 5204. 9936. In gardens. 16 Aug. to 3 Sept.

*V. maritima* flore incarnato. *Neal* 67.

*V. maritima*  $\gamma$  *Hort. kew. ed. I.* i. 18.

*V. longifolia*  $\gamma$  *Hort. kew. ed. II.* i. 28.

*V. maritima incarnata*. *Weston* iii. 733.

*Root* perennial. *Stem* when with 1 or 2 spikes erect, when with many spikes decumbent, to 26 inches long, pubescent, sometimes glabrous below, often purplish, bare of leaves below; hairs crowded, incurvate, decurvate; with short leafy shoots in the axillae. *Leaves* recurvate, somewhat shining, from 2 to 3 inches long, from 5 to 8 tenths of an inch broad; margin entire at the base. *Flowering branches* shorter than the stem, opposite and alternate, leafy, from 1 to 9, sometimes with a racemus at the base. *Racemi* from 2 to 7 inches long, flowering upwards, nearly sessile. *Calyx* quadripartite and quinquepartite, shorter than the pedicle, ciliate with very short hairs; segments linear acute, the 2 lower just longer. *Corolla* fleshcoloured, 2 tenths of an inch long; limb vertical, quadripartite, sometimes quinquepartite and sexpartite; segments ovate, the uppermost broader, the lower somewhat narrower than the lateral segments. *Stamina* fleshcoloured,



sometimes only 1. *Germen* oval, with a few hairs at the end. *Style* purplish crimson. *Stigma* convex, somewhat broader than the style, of the same colour with the style. *Capsule* stil green, nearly as long as and just longer than the calyx, rotundo-cordate, with a furrow descending down each side from the emarginature, bilocular and trilocular; cells polyspermous. *Obs.* 9936.

♂ *alba*. Corolla white.

28. *VERONICA incisa*. Racemi terminales bracteati, floribus distinctis. Caulis pilis incurvis pubescens. Folia lineari-lanceolata, pinnatifido-incisa, glabriuscula. Calyx quadripartitus; laciniis ensatis.—Racemi terminal; flowers distinct. Stem pubescent, with incurvate hairs. Leaves lineari-lanceolate, pinnatifido-incise nearly glabrous. Calyx quadripartite; segments ensate. *Obs.* 3582. Specimen gathered with Lee in Hammersmith nursery.—*Linn. a Willd.* i. 58; *a Roem. & Schult.* i. 97; *a Spreng.* i. 71. *Vahl. enum.* i. 61. *Willd. enum.* i. 19. *Schrad. ver.* 33. *Hort. kew. ed. I.* i. 19; *ed. II.* i. 28. *Smith in cycl.* xxxvii. n. 14.

*Veronicastrum incisum*. *Moench. marb.* ii. 158.

*Stem* strict. *Flowering branches* erect. *Pedicles* pubescent. *Bractee* becoming shorter and narrower upwards, the lower lineari-lanceolate, dentate, longer than the pedicled flower, those above linear at length setaceous. *Calyx* pubescentulous; commissures diaphanous. *Corolla* infundibuliform, microscopically tuberculate; segments obovate. *Stamina* longer than the corolla. *Germen* ovate. *Style* filiform. *Stigma* lenticular. A careful examination and cultivation of the fruit and seeds of this and *V. pinnata* will I suspect prove them to be only variations of one species.

29. *VERONICA pinnata*. Racemi terminales bracteati. Caulis pilis incurvis pubescens. Folia laciniata, laciniis setaceo-linearibus. Calyx quadrifidus, laciniis ensatis, commissuris diaphanis.—Racemi terminal bracteate. Stem pubescent; hairs incurvate. Leaves lacinate; segments setaceo-linear. Calyx quadrifid; segments ensate; commissures transparent.

*Obs.* 3579. 3580. Specimens gathered by Mdsle. Koller and M. Geltibrand in Vienna garden.—*Obs.* 12078.—Specimens gathered in Lichfield and Robinsons street gardens. 22 Aug.—*Linn. mant.* 24; *a Murr.* 58; *a Willd.* i. 57; *Roem. & Schult.* i. 97; *a Spreng.* i. 72. *Vahl. enum.* i. 61. *Sibth. prodr.* i. 6. *Willd. enum.* i. 19. *Link. enum.* i. 24. *Schrad. ver.* 32. *Smith in cycl.* xxxvii. n. 16. *Hort. kew. ed. I.* i. 19; *ed. II.* i. 28. *a monostachya.* Leaves pubescent. *Obs.* 3579.

*Leaves* similar to those of *Artemisia Abrotanum*.—*Racemus* 6 inches long. *Flowers* distinct. *Calyx*, tube enervose, with 4 diaphanous streaks from the commissures; sinuses rather acute; 2 of the segments rather longer. *Corolla* multinervose, shorter than the stamina.

*β polystachya* (Variety) Leaves glabrous. *Obs.* 12078. 3580.

*V. laciniata.* *Linn. a Willd.* i. 58; *a Roem. & Schult.* i. 98; *a Spreng.* i. 71. *Vahl. enum.* i. 61. 361. *Link. enum.* i. 24. *Willd. enum.* i. 19. *Hort. kew. ed. I.* i. 19; *ed. II.* i. 28. *Schrad. ver.* 32.

*Veronicastrum laciniatum.* *Moench. marb.* ii. 158.

*Leaves* frequently fasciculate. *Racemi* from an inch to a foot long. *Flowers* crowded. *Pedicles* pubescent, filiform. *Calyx* pubescentulous; tube with 3 ribs below each of the segments; 2 of the segments somewhat longer; sinuses acute. *Stamina* longer than the corolla. *Germen* glabrous.

30. *VERONICA incana.* *Racemi* terminales subspicati tomentosi. *Folia* caulisque tomentosi. *Capsulae* lenticulares.—*Racemi* terminal bracteate compact tomentose. *Leaves* and stem tomentose. *Capsules* lenticular. *Obs.* 1505. 12079. In gardens.—*Bieb.* i. 7; iii. 9. *Smith in cycl.* xxxvii. n. 11.

*a acuta.* Leaves lanceolate. *Obs.* 1505.

*V. incana.* *Bieb.* i. 7, var. *campestris.* (*Linn. sp.* i. 14; *a Willd.* i. 58; *a Roem. & Schult.* i. 92; *a Spreng.* i. 71. *Willd. enum.* i. 15. *Vahl. enum.* i. 59. *Schrad. ver.* 19. *Moench. marb.* i. 433. *Krock.* i. 14. *Hort. kew. ed. I.* i. 18; *ed. II.* i. 27. *Bieb.* i. 7, var. *alpestris*, are a variety which I have not seen.)

*V. canescens.* Schrad. ver. 19.

*V. neglecta.* Vahl. enum. i. 59. 361. Willd. enum. i. 15. Linn. a Roem. & Schult. i. 92. Link. enum. i. 21.

*Stem* ascending, to 2½ feet long. *Leaves* serrate, the upper in some plants entire at the margin. *Bracteae* ensate, tomentose, somewhat longer than the calyx. *Pedicles* tomentose. *Calyx* comprest, tomentose, twice as long as the pedicles; 2 lower segments somewhat longer, acuminate; 2 upper obtuse. *Corolla* blue, sometimes trifid and bifid; throat with white villi. *Obs.* 1505.—*Capsule* scarcely emarginate, black, sublanuginose at the end, somewhat more than the tenth of an inch long; cells with few seeds. *Seeds* obovato-oval, comprest, tawny; back convex, varying in size, the largest one third of the tenth of an inch long; face flattish, with a foveola above the middle, smaller than those of *V. spicata* but an examination of those of the other var. will perhaps confirm the opinion of Bieberstein that they are both varieties of *V. spicata*.

31. *VERONICA longifolia.* Racemi terminales subspicati. Capsulae obcordatae. Folia opposita, lanceolata oblongo-lanceolata ellipticaeque, inaequaliter serrata. Corollae laciniae ovaes and ovatae. Calycis laciniae ensato-lineares, corollae tubi longitudine. Pedicelli calyce breviores.—Racemi terminal subspicate. Capsules obcordate. Leaves opposit, lanceolate and elliptic, unequally serrate. Segments of the calyx ensato-linear, as long as the tube of the corolla. Pedicles shorter than the calyx. *Obs.* 3591. Specimen from Leske.—*Obs.* 200. 3626. In the garden at Red-house near Worcester.—*Obs.* 12123. Specimen gathered in Lichfield garden. 22 Aug.—*Obs.* 7534. In a garden in Hasland near Chesterfield.—*Obs.* 10647. In a garden in Kings Swinford in Staffordshire.—*Linn. sp.* i. 13? a *Willd. i.* 5. *cop. from Roth. germ.* i. 5; ii. *pars* i. 7. *Hort. kew. ed. I.* i. 18. *Schreb. lips.* 10. *Honck.* i. 83. *Smith in cycl.* xxxvii. n. 10. but the calyx described as ovate & shorter than the tube of the corolla.—(*Linn. suec.* 4, is described as having leaves glabrous and twice as broad as those of *V. maritima*.)

*V. australis.* Schrad. ver. 24. t. 2. f. 3. Leaves and

capsule. Raised from seeds gathered in the south of Europe.—*Vahl. enum.* i. 360, from Schrad.—*Willd. enum.* i. 16. *Linn. a Roem. & Schult.* i. 91. *Link. enum.* i. 21.

*V. recta.* *Lob. ic.* i. 473, *cop. in Park. theatr.* 560, and *repr. in*

*V. recta vulgaris.* *Clus. hist.* i. 347.

*V. major latifolia.* *Class. pann.* 617. n. 3. t. 618, *repr. in*

*V. l.* *Clus. hist.* i. 346, *cop. in*

*V. major latifolia, foliis splendentibus and non splendentibus, tertia species.* *Bauh. J.* iii. 283, *repr. in*

*V. spicata latifolia.* *Ger. by Johns.* 628 and *cop. in Park. theatr.* 550. *Raii hist.* i. 845.

(*V. Linn. ups.* 7. n. 1, is a plant of Tartary described as having glabrous stems, and leaves broader than those of *V. maritima*.)

*Corolla*, segments oval. *Obs.* 3591.—*Stems* ascending-erect, mostly simple, a foot long and upwards, pubescent, in a specimen nearly out of flower gathered 25 Aug. glabrous below, with 1 and 3 racemi. *Leaves*, the upper generally pubescent along the costa underneath, and occasionally along the margin, dull, flattish, from  $1\frac{1}{2}$  to 2 inches long, from  $\frac{3}{4}$  to 1 inch broad; margin entire at each extremity, in some leaves serrate to near the end; serratures unequal; serrations acute and rather obtuse. *Petioles* pubescent at the margin. *Racemi* 1 and 2, villose. *Calyx* quadripartite and quinquepartite, pubescent; segments linear-ensate, ciliate; hairs attenuate, articulated, flexuose. *Corolla*  $2\frac{1}{4}$  to nearly 3 tenths of an inch long; tube whitish, somewhat longer than the calyx; throat villose with whitish hairs; limb pale blue; segments ensato-ovate, acute. *Stamina* longer than the corolla. *Germen* glabrous. *Style* pale blue above, whitish below. *Stigma* simple. *Antherae* oblong, bilocular. *Pollen* globose and oval. *Capsule* oval, emarginate, as long as the calyx. *Seeds* irregularly oval, fulvous. *Obs.* 200.—*Leaves* lanceolate oblongo-lanceolate and elliptic. *Calyx* pubescent, longer than the pedicle; segments nearly equal, ensato-lanceolate.

*Corolla* 2 tenths of an inch long; tube somewhat shorter than the calyx; segments rounded, the uppermost obovate; the 3 lower oval, nearly equal. *Stamina* twice as long as the corolla. *Obs.* 3626.—*Stem* ascending at the base,  $1\frac{1}{2}$  foot long. *Calyx* pubescent; segments lanceolato-ensate. *Corolla*  $2\frac{1}{2}$  and 3 tenths of an inch long; tube shorter than the calyx; segments obovate and ovate, obtuse. *Germen* ovate, pubescent at the end. *Obs.* 10647.—*Stem* upwards of 2 feet long, with 1 racemus, glabrous. *Leaves* lanceolate, glabrous. *Racemus* 14 inches long, linear, pubescent, in flower at the end. *Obs.* 12123.—*Stems* 2 feet 3 inches long, erect, pubescent. *Leaves* opposit. *Racemi* 6, to 15 inches long. *Corolla* violet coloured,  $2\frac{1}{2}$  tenths of an inch long; segments elliptic, the lowermost linear.—*Stamina* 2, imperfect. *Filaments* very short. *Pistil* one third shorter than the corolla. *Obs.* 7534.—Most nearly allied to *V. spicata* of which it may possibly prove a variety.

32. *VERONICA spicata*. *Racemi* terminales subspicati. *Folia* opposita crenato-serrata, oblonga lanceolataque. *Caulis* adscendens pubescens. *Capsulae* obovatae obcordataeque.—*Racemi* terminal subspicate. *Leaves* opposit, crenato-serrate, oblong & lanceolate. *Stem* ascending, pubescent. *Capsules* obovate & obcordate. *Obs.* 11604. 11857. In a rocky pasture at the north end of Barmouth in Merionethshire, on schistus, in fl. and fr. 3 and 29 Oct.—*Obs.* 12361. In Broomhouse garden from a root procured for me by Mrs. Ford and dug up by Mr. Clavering Wood, near the summit of Brithen hills, primaeval mountains, in Montgomeryshire. 16 July.—*Obs.* 3584. Specimen in fr. gathered in Paris garden.—*Obs.* 10620. Specimen gathered by Davies at Gloddaeth in Caernarvonshire, on limestone.—*Obs.* 9354. In Darley garden, in fl. and fr.—*Obs.* 3585. 12086. Specimens from Baron Jacquin, apparently indigenous.—*Obs.* 3599. Specimen from Baron Jacquin under the name of *V. spuria*.—*Obs.* 12087. Specimen gathered in the garden of the Crown inn at Great Malvern in Worcestershire. 23 Aug.—*Obs.* 10621. 9542. In Trentham garden. 25

Sept.—*Obs.* 3583. Specimen gathered in Perryhill nursery.—*Obs.* 1504. In Blymhill garden.—*Obs.* 10646. 12082. In Darley garden. Mr. Knowlton received it from his grandfather Knowlton who cultivated it under the above name. July. 5 Sept.—*Obs.* 3586. Specimen gathered by Broughton.—*Huds.* 3. *Wallr. sched.* 4. *Linn. a Spreng.* i. 71. *Wahl. succ.* i. 5.

Nat. of Europe from Spain to Cumberland and Sweden.

*a lancifolia* (Variation) Cauline leaves lanceolate. *Obs.* 3586. 9354. 3585.

*V. spicata.* *Fl. dan. t.* 52. On the sunny hills of the islands of Christiania sound.—*Engl. bot. t.* 2, from Newmarket heath in Cambridgeshire, on chalk.—*Wahl. ups.* 3. *Spreng. hal.* 6. *Scheuch. J. Jac. it.* ii. 71. *n.* 98. In the Grisons.

*V. mas recta angustifolia, spica caerulea.* *Barrel.* 17. *n.* 156. *t.* 681.

*V. II. Clus. pann.* 619, *repr. in hist.* i. 346, and

*V. assurgens. Ger. by Johns.* 628, and *cop. in*

*V. major. Bauh. J.* iii. 284.

*V. recta minima. Clus. hist.* i. 347, *repr. in Lob. obs.* 250; *ic.* i. 472, *cop. in Dalech.* ii. 1319, & *repr. in Ger. by Johns.* 627. At Barnes near London.—*Ger. J.* 503.

*V. spicata recta minor. Bauh. J.* iii. 282. Leaves represented as entire at the margin, a variety described by Schult. & Horn.—*Raii syn.* 279. In closes adjoining to Newmarket heath beyond Bottesham.

*Stem* pubescent, to 7 inches long, with 1 & 3 racemi.

*Leaves*, the uppermost entire at the margin. *Calyx* hirsute; hairs articulate; segments oblongo-lanceolate, 2 rather larger than the other 2. *Germen* ovate and oval, hirsute at the end; hairs articulate. *Style* glabrous. *Obs.* 3585.—*Stem* 7 to 12 inches long.

*Leaves*, the upper entire at the margin. *Obs.* 3586.—*Stem* radicant at the base,  $\frac{1}{2}$  foot long growing in a flowerpot,  $1\frac{1}{2}$  growing in the open ground. *Leaves* oblongo-lanceolate; margin entire a little below the end, often serrate to the end; lower leaves of the plant growing in the pot canaliculate, often conduplicate.

*Spikes* erect, racemose at the base, terminal, nearly sessile, with from 3 to 5 pedunculate spikes at the base of the terminal spike. *Bracteae* in plants in a pot linear, 1 tenth of an inch long, with globiferous hairs; in the open ground lanceolato-linear, 2 tenths of an inch long, with acute hairs, with a few globiferous hairs intermixt at the end. *Flowers* horizontal, the lower nearly sessile, the upper sessile. *Calyx* quadripartite, pubescent; hairs acute, with some globiferous hairs; 2 lower segments somewhat longer; segments of the plant growing in the pot linear and lanceolate-oblong, those of the plant growing in the open ground lanceolato-linear, twice as long. *Corolla* bilabiate, blackish blue, that of the plant of the open ground one third longer; segments patent, slightly undate, emarginate; upper segment of the plant in the open ground elliptic, that of the plant in the pot oblong, erose at the end; lateral segments of the plant in the open ground lanceolate, narrower than the upper; lower segment twice as narrow as the upper, lineari-lanceolate, somewhat longer than the upper; 3 lower segments of the plant in the pot nearly equal, lanceolato-linear, the middlemost sometimes longer, sometimes narrower. *Stamina* blue, one third longer than the corolla. *Filaments* inserted below the 2 upper commissures, decurrent to the base. *Antherae* cordate. *Pollen* straw colourd, oval, when wetted globose. *Pistil* somewhat longer than the corolla. *Germen* oval and ovate, pubescent at the end. *Style* blue, reticulate. *Stigma* obtuse. *Vasa decurrentia* 2, beginning at the base of the stigma. *Capsule* bilocular, opening at the end, subrotundo-ovate, slightly comprest, pubescent, fuscous, 1 tenth of an inch long; cells with from 4 to 8 seeds. *Seeds* oval, subangulate, comprest, rugose, fulvous, slightly concave and flattish on one side, slightly convex on the other, from one third to nearly half of the tenth of an inch long, opaque, when moistened reticulate, semitransparent at the borders. The variations in the calyx and corolla in the plants growing in a pot and in the open ground, in which ways all alpine plants should be cultivated, are worthy notice. *Obs.* 9354. 3584.

*β ternifolia* (Variation) Leaves oblongo-lanceolate, 3 in a verticillus. *Obs.* 1504.

*γ obovato-oblonga* (Variation) Lower leaves obovato-oblong, the upper elliptic. *Obs.* 12087.

*δ elliptica.* Leaves elliptic. *Obs.* 10646. 12086.

*V. villosa.* *Schrad. ver.* 31. *t.* 1. *f.* 3. Leaves and capsule.—*Host. fl.* i. 5.

*Hairs* straight and subcurvate. *Stem* ascending, subcurvate, terete, pubescent, 1½ and 2 feet long, radicanant at the base. *Leaves* of the stem and shoots elliptic and ovato-elliptic, serrate, entire at the margin above and below, to 2½ inches long; the lowermost oblongo-lanceolate, the upper lanceolate and nearly entire at the margin; serrations acute. *Spikes* compact, 1 and 2, when in flower 4 inches long, when in fruit 3 to 8 inches long. *Flowers* crowded. *Calyx* quadripartite, pubescent, longer than the pedicel; segments linear-lanceolate, the 2 lower somewhat longer, to near 2 tenths of an inch long; hairs articulated, angularly and irregularly flexuose, sometimes spinose. *Corolla* thrice as long as the calyx, 3 tenths of an inch long, purplish violet; tube whitish, pilose within; limb quadripartite; upper segment ovate and elliptic, canaliculate; lateral segments somewhat narrower, elliptic and lanceolate and all lanceolate, and the lowermost lanceolate. *Stamina* just shorter than the corolla. *Filaments* bluish. *Germen* ovate, pubescent; longer hairs acute, shorter globiferous. *Style* filiform, violet coloured; texture tubular; tubes articulate; articulations oblong. *Stigma* obtuse. *Vasa deferentia* 2, olive coloured. *Capsules* subrotundo-obcordate, just longer than the calyx, slightly pubescent. *Seeds* oval, fulvous, reticulate, more than one third of the tenth of an inch long, numerous; back convex; face flattish, with the chalaza between the middle and the end. *Obs.* 10646.—*Leaves*, the lower elliptic, serrato-crenate, the upper lanceolate. *Obs.* 12086.

*ε latifolia.* Lower leaves ovate, the upper elliptic oblongo-lanceolate and lanceolate. Segments of the corolla elliptico-oval. *Obs.* 11604. 11857.

*V. spicata.* *Huds.* 3. *β Wallr. sched.* 4. *B. Wahl. succ.* i. 5 *β*



*V. hybrida*. *Linn. succ.* 4. In the island Flaeskloesan in the lake Maeler; *sp.* i. 14, where it is said to have the leaves of *V. officinalis* and the stem of *V. spicata*, but with larger and paler spikes; an observation omitted in *a Reich.* i. 26; and *a Willd.* i. 57, who describes the leaves as ovate, acuminate, rather obtuse, asserting that the *V. hybrida* of the German botanists is a variety of *V. spicata*; *mant.* 316; *a Roem. and Schult.* i. 95. *Wahl. ups.* 3. Corolla pale blue. On the stony islands of Maeler lake.—*Schrad. ver.* 22; *germ.* i. 17. *Willd. enum.* i. 16. *Bieb.* i. 8; iii. 9. *Retz. scand.* 5. In shady meadows.—*Vahl. enum.* i. 60, from a cultivated plant.—*Mill. Ph. dict. n.* 6. *Spreng. mant.* ii. 5, the cultivated plant.—*Honck.* i. 87. *Host. fl.* i. 8; from July to late in the autumn; *syn.* 5. In the warmer parts of Carniola.—*Bot. arr.* i. 9; iii. p. cxv. Found by Hall on Ompherhead a steep rock near Cartmell wells in Lancashire.—*Smith brit.* i. 16; *engl.* i. 17; *in cycl.* xxxvii. n. 13. *Turn. and Dillw.* ii. 519. Found by Mr. Dyer near the Giants hole at St. Vincents rocks near Bristol.—(*Roth. germ.* i. 5; ii. 8, is described as having pedicles filiform and thrice and four times as long as the calyx.)

*V. Raii* *hist.* ii. 1887; *syn. ed. II.* 177. n. 1. & found by Lhwyd on Craig Wreidhin in Montgomeryshire, (called in Shropshire the Brithen hills.) *Dill. ap. Raii syn. ed. III.* 278. t. 11, at p. 279, from a cultivated plant. Stem with 3 racemi, but Dillenius describes the wild plant as having mostly 1 racemus.

*V. mas recta latifolia, spica caerulea.* *Barrel.* 17. n. 156. t. 682.

Hirsutulous. *Root* fusiform, with lateral fibres, tawny. *Stem* ascending ascendent-erect & erect, pubescent, 5 to 9 inches long; *radical shoots* half as long as the stem, ascending, with leaves similar to those of the stem. *Leaves* pubescent, oval ovali-ovate oblongo-lanceolate oblong elliptic and lanceolate, serrate & crenato-serrate; the upper entire and nearly entire at the margin; serrations obtuse. *Petioles* canaliculate, half as long as the laminae. *Spike* to 4 inches long, lanceolate, terete. *Flowers* sessile and nearly sessile, the

lower sparse, those above crowded. *Bracteeae* lanceolate, solitary. *Calyx* quadripartite, villose, as long as and longer than the bracteeae; segments lanceolato-linear lanceolato-elliptic and oval, trinervose; the two lower somewhat larger. *Corolla* hypocraterine and infundibulate, vertical, subbilabiate, 4 times longer than the calyx, violet, by candlelight purple; tube as long as the calyx; limb quadripartite; 4 times longer than the tube; segments trinervose elliptico-oval, the uppermost sometimes broader and lateral segments elliptic; lower segment sometimes lanceolate; throat hirsute; hairs whitish. *Stamina* 2, violet, just shorter than and twice as long as the corolla, inserted into the base of the tube, below the 2 upper commissures. *Antherae* oval and oblong, tuberculate. *Pollen* straw colourd, ovali-elliptic. *Nectarium* patellate. *Germen* bilocular, oligospermous, oval, hirsute above. *Seeds* of the germen globose to 13. *Style* filiform, purple. *Stigma* turbinate. *Capsule* stil green bilocular, oval, subcomprest, subemarginate, pubescentulous, somewhat longer than the calyx, 1 tenth of an inch long. *Seeds* oval and obovato-oval, comprest, fulvous, somewhat more than the third of the tenth of an inch long, some with a transparent border on one margin; back convex; face flattish and convex with a longitudinal ridge; chalaza above the middle. *Obs.* 11604. 11857.

ζ *oblongifolia*. Leaves oblong. *Obs.* 3583.

*V. spicata*. *Bot. mat. med.* i. 28. *Walt. sched.* 4. *A. Linn. succ.* 4; *sp.* i. 14; *a Willd.* i. 56; *a Roem. & Schult.* i. 93. *Brandt* 3. *Willd. ber.* 8; *enum.* i. 15. *Krock.* i. 11. *Schrad. ver.* 20; *germ.* i. 15.—*Schult. obs.* 2. 3, *under n.* 16. *Vahl. enum.* i. 60. *Poll.* i. 8. *Honck.* i. 85. *Asso l. Succ.* 8. *Sibth. prodr.* i. 6. *Gou. hort.* 9; *monsp.* 64. *Host. fl.* i. 8; *syn.* 5. *Jacq. vind.* 2. *Roth. germ.* i. 5; *ii. pars* i. 7. *a Scop. carn.* i. 17. *a. n.* 1. *Reich.* i. 3. *Bieb.* i. 8. *Wahl. ups.* 3; *helv.* 3; *carp.* 4. *Lam. & Dec.* iii. 468; *syn.* 210. *Mull.* 4. *Gort. foed.* 4. *Moench. marb.* i. 483. *Retz. scand.* 5. *Relh. ed.* I. 3; *ed.* II. 6. *Thuill.* 6. *Mill. Ph. dict. n.* 4. In closes near Newmarket heath.—*Huds.* 3. *a* Near Snowdon mountain in Caernarvonshire. Found by Ph. Mil-

ler in pastures about Horseheath hall in Cambridgeshire.—*Horn*. i. 15. In mountainous and maritime situations.—*Bot. arr.* i. 8. Found by Woodward on Cavenham heath near Bury in Suffolk; *ed. IV.* ii. 10. Found by Withering about Penzance in Cornwall.—*Smith. brit.* i. 15; *engl.* i. 17; *in cycl.* xxxvii. n. 12. *Lightf. in Penn. nales* 8vo iii. 142. At Gloddaeth in Caernarvonshire.—*Bingl.* i. 91. On Diserth castle hill a high limestone rock in Flintshire; on Penmaenmawr in Caernarvonshire.—*Turn. and Dillw.* ii. 537. On Cavenham Culford & Risby heaths in Suffolk; i. 291. Near Prestatyn in Flintshire; ii. 365. Near Pennybridge in Lancashire; i. 144. Near Kirkland [N.E. of Penrith] in Cumberland; ii. 638. In Arnside park [W. of Ambleside] in Westmorland.

*V. hybrida.* *Spreng. hal.* 7; *mant.* i. 3.

*V. Hall. hist.* i. 234. n. 542.

*V. caule simplici.* *Hall. gott.* 234.

*V. montana.* *Rupp. ab Hall.* 246.

*V. spicata minor.* *Tourn. paris.* 167. *Vaill. paris.* 200. t. 33. f. 4, where 3 stamina are figured and described.

*Stem* 16 inches long, ascending at the base, with 5 racemi. *Flowering branches* from just above the base, alternat and opposit. *Leaves*, the lowermost ovato-oblong and cordate, the lower obtuse, the upper acute. *Floral leaves* acute, entire at the margin. *Calyx* quadripartite; segments lanceolato-ensate, unequal, hirsute; hairs articulated. *Corolla* deep blue. *Germen* oval, hirsute at the end. *Nectarium* glandular, patellate, surrounding the base of the germen. *Capsule* obcordate subrotund and oval with an emarginature, with a few hairs at the end, polyspermous, with to 30 seeds. *Seeds* oval, acute at each end, fulvous, one fourth of the tenth of an inch long, opaque. *Tunic* minutely reticulate. *Obs.* 10621.—*Stem* from 14 to 16 inches long. *Leaves* oblong and elliptic. *Capsule* bilocular, oval, slightly comprest, pubescent, brownish black,  $1\frac{1}{4}$  tenth of an inch long; cells with 3 and 4 seeds. *Seeds* oblongo-obovate, convex on the back concave on the face, fulvous, somewhat more than hal

of the tenth of an inch long, microscopically reticulate, when steeped slightly diaphanous at the margin, scarcely shewing by transmitted light its reticulated texture. *Obs.* 3583.

*Nat.* of Caucasus Carniola Saxony Somersetshire Merionethshire Montgomeryshire Lancashire and of the island Maeler Flaeskloesan in Sweden.

♀ *pallida*. Lower leaves oval and subcordato-oval. Corolla whitish blue. *Obs.* 9542.

V. hybrida. *Krock.* i. 11. *Wahl.* ups. 8. *Wallr. sched.*

#### 4. B β

*Stem* ascending, simple, 10 inches long; radical shoots ascending, as long as the leafy part of the stem. *Leaves* of the stem and radical shoots serrato-crenate to very near the end. *Racemus* 6½ inches long. *Calyx* quadripartite, hirsute; segments lanceolato-ensate; hairs articulated. *Germen* oval, hirsute from above the base, polyspermous; hairs fusiform, acute, articulated. *Style* filiform. *Stigma* obtuse. *Nectarium* patellate.

♂ *polystachya* (Variation) Leaves of the shoots oblongo-lanceolate, lower floral leaves entire at the margin. Spikes several. *Obs.* 9854.

*Stem* ascending, 1 to 1½ foot long. *Calyx* quadripartite; segments linear. *Corolla* purplish violet; segments linear suberose at the end.

♂ *oblongo-lanceolata* (Variation) Leaves oblongo-lanceolate. Segments of the corolla ensate. *Obs.* 3599. 12361.

Pubescent; hairs globiferous and acute. *Stems* ascending subflexuose, 14 inches long. *Leaves* decussate, serrate, canaliculate, the lowermost oblong, those above lanceolato-oblong and lanceolate. *Spike* lanceolate, terete, flowering upwards, interrupted below, crowded above. *Bractee* ensato-lanceolate. *Calyx* quadripartite; segments ensato-lanceolate. *Corolla* purplish violet, infundibulate; tube with a circle of whitish hairs within; limb quadripartite, horizontal; segments ensate. *Stamina* purplish violet, patent. *Pollen* strawcoloured, globose. *Germen* oval, polyspermous, hirsute. *Style* filiform, purplish violet, deflex, microscopically striate. *Stigma* simple. *Vasa deferentia* 2. *Obs.* 12361.—*Leaves* oblong lanceolate

oblongo-lanceolate lanceolato-oblong and ovali-ovate: margin entire near the end. *Calyx* hirsute, somewhat longer than the tube of the corolla. *Corolla*, segments oblongo-oval, twice as long as the tube. *Obs.* 3599.—Hirsutulous. *Stem* 8 inches long; shoots ascending. *Leaves* oblongo-lanceolate oblong and elliptic, obtusely serrate to the end, the upper sparingly serrate; those of a radical shoot oblongo-lanceolate. *Spike*  $3\frac{1}{4}$  inches long, with very short racemi at the base. *Germs* oval, villose above. *Obs.* 10620.

33. *VERONICA quinquefolia*. Racemi terminales subspicati. Folia verticillata sena quina quaternaque. Calyces septempartiti sexpartiti quinquepartitique. Corollae tubus limbo longior.—Racemi subspicate terminal. Leaves verticillate, in sixes fives and fours. Tube of the corolla longer than the limb. *Obs.* 4069. In a garden.—*Obs.* 3654. Specimens gathered in Perryhill nursery.—*Obs.* 12080. In Mrs. M. Stovins herbarium, gathered in Sheffield nursery.—*Obs.* 3573. Specimen gathered in Upton garden.—*Bot. mat. med.* i. 28.

*a glabra* (Variation) Glabrous. *Obs.* 4069.

*V. virginica*. *Linn. sp.* i. 13; *a Willd.* i. 54; *a Roem. and Schult.* i. 86; *a Spreng.* i. 70. *Mill. Ph. dict.* n. 7. *Hort. kew. ed. II.* i. 26. *Pursh.* i. 10. *Willd. enum.* i. 15. *Thunb. jap.* 20. *Michaux* i. 5. Stem frequently with only 1 spike.—*Vahl. enum.* i. 56. Leaves characterised as lanceolato-ovate.

*Leptandra virginica*. *Nutt.* i. 7. *Big.* 6. *Bart. phil.* i. 6.

*V. foliis quaternis*. *Roy.* 301. *Clayt. a Gron. ed. I.* 4.

*V. spicis terminalibus*. *Clayt. a Gron. ed. II.* 2.

*V. virginiana*. *Boerh.* i. 226. *Pluk. phyt. t.* 70. f. 2 more resembles  $\delta$

*Stem* strict, terete, pubescent, glabrous above, nearly 3 feet long. *Leaves* lanceolate, sessile, decurvedate, unequally and duplicato-serrate; serrations acuminate. *Racemi* erect, terminal and axillary, flowering from the base upwards; terminal racemus 9 inches long, sessile; axillary racemi from the uppermost verticillus of leaves, sometimes from the 2 uppermost verticilli, sometimes sparse from the end of the stem. *Rachis*

lanceolate. Spikes terminal. Bracteen and segments of the calyx linear. *Obs.* 8442. Specimen from Wright gathered by Roxburgh in India.—*Linn. sp.* i. 22; *a Murr.* 62; *a Willd.* i. 87; *a Roem. & Schult.* i. 154; *a Spreng.* i. 81. *Vahl. enum.* i. 140. *Hort. kew. ed. II.* i. 38.

*Stem* branched from the base, scabrous at the joints. *Leaves* subsessile, acute and obtuse, with microscopic linear tubercles. *Spikes* interrupted at the base, 2 inches long, glabrous. *Bracteen* 3, about as long as the calyx. *Calyx* quinquepartite; segments subcarinate, acute and obsoletely bidentate at the end, with short semiopaque lines resembling adpressed hairs. *Corolla*, upper lip ovato-triangular, bifid at the end; lower lip subrotund, subtrifid, barbate underneath, with transverse rugae below and patulous rugae above; segments incumbent. *Stamina* inserted at the commissures of the corollae. *Antherae* vertical, glabrous, bilocular; cells distinct, the lower calcarate; spur whitish, subulate.

3. *JUSTICIA quadrifida*. Corolla bilabiata; labio inferiore tripartito. Folia lineari-lanceolata.—Corolla bilabiate; lower lip tripartite. Leaves lineari-lanceolate. *Obs.* 8710. From Bawtry Garden.—*Obs.* 12205. Specimen gathered by Mr. Baker in an Italian garden, 6 Oct.—*Vahl. enum.* i. 124. *Linn. a Roem. & Schult.* i. 146; *a Spreng.* i. 80. *Willd. enum.* i. 25. *Link. enum.* i. 29. *Hort. kew. ed. II.* i. 36. *J. virgularis*. *Par. lond. t.* 50.

*Flowering branches* terete, microscopically tuberculate, with pubescent lines decurrent from the commissures of the petioles. *Leaves* lanceolate, glabrous with a very few hairs at the base, dotted underneath. *Petioles* shorter than the breadth of the leaf, villose. *Spikes* terminal, secundose, interrupted, foliaceous. *Flowers* solitary. *Bracteen* in threes, acute, at the base of the flowers, the lowermost lineari-lanceolate; the lateral ones ensate. *Calyx* quinquefid, pubescent; segments ensate; hairs globiferous. *Corolla* subpubescent without, vermilioncoloured, to  $1\frac{1}{2}$  inch long; tube 4 times

longer than the calyx; upper lip lineari-lanceolate; lower lip tripartite; segments lineari-lanceolate, recurvate. *Stamina* 2, one third shorter than the corolla. *Antherae* sagittate, bilocular; cells equal. *Germen* ovate, truncate at the base, bilocular. *Style* filiform, red, permanent. *Stigma* bipartite; segments patent, as long as the breadth of the style.

4. *JUSTICIA pectoralis*. Corolla bilabiata. Folia lanceolata. Spicae interruptae paniculatae, paniculis axillaribus terminalibusque.—Corolla bilabiata. Leaves lanceolate. Spikes interrupted paniculate. Panicles axillary and terminal. *Obs.* 12200. Specimen gathered by Broughton in Jamaica.—*Bot. mat. med.* i. 34. *Linn. a Willd.* i. 93; *a Roem. and Schult.* i. 156; *a Spreng.* i. 82. *Swartz. prodr.* 13. *Hort. kew. ed. II.* i. 40. *Dianthera pectoralis.* *Murr. ap. Linn. a Murr.* 64. *Dianthera.* *Browne, Patr.* 118. n. 3.

*Branches* glabrous, pubescentulous at the joints, with microscopic longitudinal linear whitish tubercles similar to those in *J. pectinata* and *J. Betonica*. *Leaves* glabrous, with microscopic linear tubercles. *Panicles* filiform, erect, to 2½ inches long. *Bracteae* ensate, 3 at the base of the flowers, shorter than the calyx. *Calyx* quinquepartite; segments ensate. *Corolla* twice as long as the calyx, nearly a tenth of an inch long. *Stamina* 2. *Antherae* bilocular; cells distinct, oval, the upper nearly twice as large as the lower. *Capsule* clavate, bivalve, twice as long as the calyx; peduncles of the seeds flexuose, with a knot in the middle. Has the habit of a *Polygonum*. The parts of fructification smaller than in any of the rest.

5. *JUSTICIA pectinata*. Corolla bilabiata. Spicae axillares terminalesque, secundae. Bracteae alatae, quaternae, posteriores bifariae acutae, 3 anteriores emarginatae.—Corolla bilabiata. Spikes axillary and terminal, secundose. Bracteae in fours, winged, the posterior bracteae bifarious, acute, the other 3 emarginate. *Obs.* 8444. Specimen from Wright, gathered by Roxburgh in India.—*Linn. sp.* i. 22. *Vahl. enum.* i. 154. *Roxb. cor.* ii. t. 153; *ind.* i. 134. *Hort. kew. ed. II.* i. 41.

*J. parviflora.* Retz. obs. v. 9. Linn. a Willd. i. 101.

*Diolyptra pectinata.* Linn. a Roem. & Schult. i. 171;  
a Spreng. i. 86.

*Stem* branched, to 15 inches long, subgeniculate. *Branches* alternat and opposit. *Leaves* lanceolate and elliptic. *Spikes* in pairs and solitary, sessile, oblong, twice as short as the leaves. *Flowers* alternat. *Bractea* contiguous; posterior bractea patulous; anterior bractea elliptico-cuneate, including the border obovate, acute; mucro as long as the border; the lateral ones including the border oval, membranaceous, pilosa at the margin. *Calyx* quinquepartite; segments lanceolato-subulate. *Corolla* hirsute, a tenth of an inch long; upper lip ovate acuminate; lower lip obovate, subtrifid. *Stamina* shorter than the corolla. *Antherae* bilocular; cells distinct, oval, the lower calcarate.

6. *JUSTICIA Gundarusa.* Corolla bilabiata. Folia lanceolata glabra. Spicae terminales.—Corolla bilabiate. Leaves lanceolate glabrous. Spikes terminal. *Obs.* 12196. Specimen from Wright gathered by Roxburgh in India.—*Bot. mat. med.* 1. 33. *Burm. N. ind.* 10. Linn. a Willd. i. 87; a Roem. & Schult. i. 152; a Spreng. i. 80. *Roxb. ind.* i. 129. *Willd. suppl.* 2. *Link. enum.* i. 29. *Hort. kew, ed. II.* i. 38.

*Calyx* quinquepartite; segments ensate. *Corolla* 6 tenths long; upper lip triangulari-ensate, bifid at the end; lower lip cuneate, subtrifid, with numerous lateral veins; segments obtuse. *Stamina* 2, half as long as the upper lip, inserted below the commissures. *Antherae* bilocular; cells subovate, almost contiguous; the upper cuspidate; the lower calcarate; spur very short.

7. *JUSTICIA paniculata.* Corolla bilabiata. Calyces ebracteate. Antherae simplices coalitae.—Corolla bilabiate. Calyces ebracteate. Antherae simple, connate. *Obs.* 10691. In Darley garden from seeds sent to Wright from Calcutta garden.—*Obs.* 10692. Specimen from Wright, gathered by Roxburgh in India.—Linn. a Willd. i. 89; a Roem. & Schult. i. 150; a Spreng. i. 80. *Burm. N. ind.* 9. *Roxb. ind.* i. 119. *Vahl.*



*enum. i. 130. Willd. enum. i. 26. Flem. in as. res. xi. 169.*

*Stem* erect, 10 inches long, paniculate from near the base, quadrate, glabrous; joints swollen; angles subulate, semitransparent. *Branches* decussate, patent, the lower leafy and often with 1 lateral branch. *Leaves* elliptic and lanceolate, glabrous, slightly revolute at the margin; floral leaves lanceolate. *Petioles* short. *Racemi* secundose. *Flowers* erect. *Bracteae* subulate, opposit, 2 at the base of each pedicle. *Pedicels* filiform, pubescent; lower hairs acute, the upper acute and globiferous. *Calyx* quinquepartite, pubescent on the back; segments ensato-lanceolate, costate, erect, connivent after flowering. *Corolla* resupinate, white, 5 times as long as the calyx; tube swollen at the base, compressed above; lips recurvate; upper lip trifid, with 4 lanceolate parallel blackish purple streaks about the middle; segments lanceolate; lower lip linear, binervose, just longer than the upper. *Stamina* 2, inserted at the base of the upper lip, near the commissures, patent, shorter than the upper lip. *Filaments* subulate, white, hirsute from a little above the base. *Antherae* syngenesious, bilocular, blackish purple, hirsute at the base, coherent by the union of the base of the inner lobes. *Pollen* white. *Pistil* reaching to the end of the stamina. *Germen* bilocular, ovato-lanceolate, compressed, pubescent, on a fleshy receptacle; hairs globiferous; heads somewhat broader than the stipites; receptacle turbinate, fleshy, as broad as the germen. *Style* capillary, pubescentulous below; vasa deferentia 2, ending in a filiformi-lanceolate streak opposit to the stigma. *Stigma* lineari-lanceolate, whitish, forming one side of the end of the style.

8. *JUSTICIA hyssopifolia*. Corolla bilabiata. Folia oblongo-lanceolata. Caulis fruticosus. Pedunculi axillares.—Corolla bilabiata. Leaves oblongo-lanceolate. Stem fruticose. Peduncles axillary. *Obs.* 12200. Specimen gathered in Upton garden.—*Linn. sp. i. 21; a Willd. i. 97; a Roem. and Schult. i. 164; a Spreng. i. 83. Willd. enum. i. 28. Vahl. enum. i. 162. Link. enum. i. 30. Hort. kew. ed. I. i. 28; ed II. 41.*

Adhatoda indica. *Boerh.* i. 239.

Glabrous. *Leaves* cuspidate. *Calyx* quinquepartite, pubescentulous; segments lanceolate, trinervose; border membranaceous. *Corolla* pubescent on the back,  $2\frac{1}{2}$  as long as the calyx, widely reticulate above; upper lip subovate, bifid at the end; lower lip tripartite; segments oblong. *Stamina* 2, shorter than the upper lip. *Antherae* bilocular; cells oblong, distinct; lower cell calcarate. *Stigma* simple.

9. *JUSTICIA nasuta*. *Corolla* bilabiata. *Folia* elliptica lanceolataque. *Paniculae* dichotomae axillares. *Calyx* bracteis longior. *Caulis* fruticosus.—*Corolla* bilabiata. *Leaves* elliptic and lanceolate. *Panicles* dichotomous, axillary. *Calyx* longer than the bractaeae. *Stem* fruticose. *Obs.* 12202. Specimen from Wright gatherd by Roxburgh in India.—*Obs.* 10933. Specimen scarcely dry gatherd in Halifax garden. 1 Sept.—*Linn. sp.* i. 23; *a Willd.* i. 90; *a Roem. and Schult.* i. 156; *a Spreng.* i. 79. *Willd. enum.* i. 26. *Vahl. enum.* i. 144. *Bot. mag. t.* 325. *Moench. marb.* ii. 167. *Burm. N. ind.* 9.

*Pulcolli.* *Rheede &c.* ix. 135. *t.* 69.

$\alpha$  *lanceolata* (Variation) Pubescent. *Leaves* lanceolate. *Obs.* 12202.

$\beta$  *elliptica*. Nearly glabrous. *Leaves* elliptic. *Obs.* 10933.

*Leaves* petiolate. *Corolla* white; limb bilabiate; upper lip linear, bifid at the end; segments triangular; lower lip tripartite; segments oblong. *Stamina* 2, white, three times shorter than the limb of the corolla, erect, inserted at the commissures of the lips. *Filaments* short, decurrent below. *Antherae* oblong, bilocular; cells oval, equal, distinct, one higher than the other. *Obs.* 10933.

$\gamma$  *ovata*. *Leaves* ovate, acute. *Obs.* 12203.

Glaucous. *Branches* hexagonal. *Leaves* with microscopic linear tubercles.

10. *JUSTICIA lucida*. *Corolla* bilabiata. *Folia* elliptica, acuminata. *Panicula* coarctata. *Bractaeae* calyce breviores.—*Corolla* bilabiata. *Leaves* elliptic, acuminate. *Panicle* compact. *Bractaeae* shorter than the calyx. *Obs.* 12223. Specimen pasted to paper, gatherd

by Mrs. M. Stovin in Doncaster nursery.—*Andr. rep. t. 813. Vahl. enum. ii. 400*, where read *India occidentali*.—*Hort. kew. ed. II. i. 37. Linn. a Roem. & Schult. i. 152; a Spreng. i. 80. Bot. mag. t. 1014.*

Glabrous. *Leaves* to 7 inches long. *Panicle* terminal, to 3 inches long. *Calyx* quinquepartite; segments subulate. *Corolla* to 1 inch 4 tenths long. *Style* capillary.

11. *JUSTICIA coccinea*. Corolla bilabiata. Folia bracteaeque exteriores ellipticae. Spicae terminales bracteatae. Lacinae calycinae triangulares. Caulis fruticosus.—Corolla bilabiata. Leaves and outer bracteae ensate. Spikes terminal, bracteate. Segments of the calyx triangulari-ensate. Stem fruticose. *Obs. 11757*. In Darley garden. 28 May.—*Obs. 6872*. Specimen from Perryhill nursery.—*Vahl. enum. i. 121. Linn. a Willd. i. 86; a Roem. & Schult. i. 145; a Spreng. i. 78. Willd. enum. i. 25. Hort. kew. ed. I. i. 26; ed. II. i. 36. Bot. mag. t. 482. Smith. pict. t. 8.*

*Branches* here and there microscopically pubescent. *Leaves* opposit, petiolate, pubescentulous, acute and acuminate. *Spikes* subsessile, to 5 inches long, flowering upwards. *Flowers* verticillate; verticilli triflorous and quadriflorous. *Bracteae* 3, pubescentulous; the outer acuminate, half as long as the corolla; lateral bracteae ensate, shorter than the calyx and very short. *Calyx* partito-quinquefid; segments triangulari-ensate, adprest. *Corolla* scarlet, in decay buffcoloured, 2½ inches long; tube subcurvate, subglobose and containing nectar at the base, above comprest, pentagonal, dilatate; upper lip emarginate, erect, canaliculate, recurvate at the margin, subrecurvate at the end, before expansion with 2 prominences on each side from the pressure of the lobes of the antherae; lower lip tripartite somewhat shorter; segments oblongo-ensate, with a furrow along the middle. *Stamina* just shorter than the upper lip of the corolla. *Filaments* buff and tawny yellow, pubescent behind, inserted into the base of the tube of the corolla below the lower segment, with a tubercle at the base. *Antherae* sagittate, bilocular, incumbent, buffcoloured with a stripe of red on each side.

*Pistil* stipitate, longer than the calyx; stipes turbinate, fleshy, creamcoloured, half as long as the calyx, probably a nectarium, truncate, with a slight prominence around the base of the germen. *Germen* elliptic, subcomprest, bilocular, as long as the stipes, thrice as narrow, cells oligospermous. *Style* filiform, narrower than the filaments, as long as the upper segment of the corolla, buffcoloured, purple at the end. *Stigma* whitish, roundish, bifid, with adprest lobes, filling a hollow in the end of the style, after floescence distinctly bifid. *Vasa deferentia* 4, accompanied with purple vessels.

12. *JUSTICIA geniculata*. Corolla bilabiata. Stamina didynama. Folia elliptica. Racemi axillares pauciflori, bracteis deciduis. Laciniae calycinae subulatae.—Corolla bilabiata. Stamina didynamous. Leaves elliptic. Racemi axillary, with few flowers. Bractee deciduous. Segments of the calyx subulate. *Obs.* 12297. In Maresbrook garden. 11 May.—*Sweet brit.* 327. ? *Donn by Lindl.* 9 ?

Hirsute; hairs acute. *Stem* branched from the base, quadrate; angles subulate; joints swoln. *Branches* to 2½ feet long, diffuse declinate, geniculate, villose above; lateral branches alternat, short. *Leaves* ovali-elliptic, opposit, margin entire and obsoletely crenulate. *Petioles* short. *Racemi* solitary, near the ends of the branches. *Peduncles* alternat and opposit, twice and thrice as long as the leaves and internodia, quadrate, attenuate, dichotomous at the end; branches spicate; hairs acute and globiferous. *Flowers* sessile, solitary; terminal flower pedunculate. *Calyx* to 6 tenths of an inch long; segments subulate; hairs acute and globiferous. *Corolla* scarlet, pubescentulous, 2½ as long as the calyx, 1½ to 2 inches 2 tenths long; tube comprest, cultrate and semitransparent anteriorly; segments oblong, obtuse; upper lip bifid; lower lip tripartite. *Stamina* 4, didynamous and diadelphous, inserted into the middle of the tube, decurrent below, in 2 pairs, reaching to the commissure of the upper lip of the corolla. *Filaments* whitish, those of each pair connate from their insertion half way towards the end. *Antherae* sagittate, whitish brown, bilocular. *Pollen* whitish,

globose. *Pistil* longer than the corolla. *Germen* bilocular, fusiform, pubescent above with globiferous hairs, inserted into a subglobose nectarium. *Nectarium* strawcoloured, glandular, broader than the base of the germen. *Style* filiform, purplish scarlet. *Stigmata* 2, patulous, lanceolato-oblong, unequal.

13. *JUSTICIA Adhatoda*. Corolla bilabiata. Folia elliptica. Spicae axillares. Bractae ternae, exteriore ovali-elliptica, lateralibus lanceolatis.—Corolla bilabiate. Leaves elliptic. Bractae in threes, the outer ovali-elliptic, the lateral ones lanceolate. *Obs.* 12204. Specimen from Wright gathered by Roxburgh in India.—*Obs.* 8531. In Renishaw garden.—*Obs.* 12056. Specimen gathered by Mr. Baker in a public walk at Naples.—*Linn. sp.* i. 20; *a Willd.* i. 96; *a Roem. & Schult.* i. 159; *a Spreng.* i. 80. *Vahl. enum.* i. 153. *Willd. enum.* i. 27. *Vent. tabl.* iv. 100. *t. 8. f. 5. Hort. kew. ed. I.* i. 28; *ed. II.* i. 41. *Roxb. ind.* i. 127. *Adhatoda pubescens. Moench. marb.* i. 431. *J. Linn. ups.* 7; *zeyl.* 6. *n. 16. Roy.* 291. *n. 1. Adhatoda zeylanensium. Boerh.* i. 239. *Burm. J. zeyl.* 6.

*Adhatode. Pluk. alm.* 9. *t.* 173. *f.* 3.

*Leaves* lanceolate elliptic and ovato-elliptic. *Spikes* oval, pedunculate, opposit. *Calyx* quinquepartite, tubular, somewhat shorter than the bractae; segments lanceolate, trinervose, reticulate, pubescent at the margin. *Corolla* thrice as long as the calyx, white, with crimson lines at the base of the upper lip and middle of the lower lip; upper lip quadrato-oblong, emarginate; segments emarginate; lower lip trifid; segments oval; intermediate segment with numerous patent crimson ribs at the base. *Stamina* 2, inserted at the commissures, even with the corolla. *Filaments* linear, uninervose. *Antherae* 2 to each filament, distinct, one inserted a little below the other, oblong, bilocular. *Nectarium* calathine, pubescent at the margin, surrounding the base of the germen. *Pistil* as long as the corolla. *Germen* conic. *Style* filiform, curvd, pubescentulous. *Stigma* simple. *Obs.* 12204. 8531.

14. *JUSTICIA ciliaris*: Corolla bilabiata. Folia lanceolata, inferne ciliata. Flores axillares, solitarii sessiles oppositi.—Corolla bilabiate. Leaves lanceolate. Flowers axillary solitary sessile opposit. *Obs.* 6873. Specimens in fr. gathered in Paris and Vienna gardens.—*Linn. fl. suppl.* 84; *a Willd.* i. 90; *a Roem. and Schult.* i. 151; *a Spreng.* i. 84. *Willd. enum.* i. 26. *Vahl. enum.* i. 134. *Moench. marb.* i. 432. *Link. enum.* i. 30. *Hort. kew. ed. I.* i. 27; *ed. II.* i. 37.

*Stem* leafy scabrous pubescent. *Leaves* oblongo-lanceolate. *Calyx* quinquepartite, hirsute; segments ensate and subulate, unequal. *Corolla* shorter than the calyx; upper lip triangular, bifid at the end; lower lip cuneate trifid, somewhat longer; segments triangular. *Stamina* 2, half as long as the limb, inserted below the commissures; rudiments roundish, hirsute, at the base of the upper lip. *Antherae* oblong, unilocular? with a whitish ensate appendage at the base. *Pollen* oval. *Pistil* shorter than the corolla. *Germen* ovate. *Style* filiform. *Stigma* oval, vertical. *Capsule* bilocular, bivalve, ovate, gibbous below; dissepiments contrary, with 1 hooked process at the base; cells monospermous. *Seeds* unripe, reniform, comprest,  $1\frac{1}{2}$  tenth long, with a villose tuft in the middle of the upper and base of the lower margin; villi fusiform, curvate, articulated, tawny white, crowded.

15. *JUSTICIA echioides*. Corolla bilabiata. Folia oblonga ellipticaque, sessilia, hirsuta. Paniculae axillares secundae.—Corolla bilabiate. Leaves oblong & elliptic, sessile, hirsute. Panicles axillary secundose. *Obs.* 8441. Specimen from Wright gathered by Roxburgh in India.—*Linn. sp.* i. 22; *a Willd.* i. 87; *a Roem. & Schult.* i. 146; *a Spreng.* i. 79. *Vahl. enum.* i. 123; *Roxb. ind.* i. 119. *Burm. N. ind.* 9. *J. Linn. zeyl.* 8. n. 21.

*Hirsute*. *Panicles* opposit, the upper sometimes alternat, subramose. *Bracteae* at the base of the pedicles. *Pedicles* very short. *Calyx* quinquepartite; segments setaceo-ensate. *Corolla* nearly twice as long as the calyx; upper lip entire; lower lip trifid. *Antherae* sagittate; one of the lobes barbate. *Capsules*

elliptico-lanceolate, bilocular, bivalve, deprest; dissepiment contrary; receptacles of the seeds hooklike, 2 in the dissepiment of each valve. *Seeds* oval, honey-combed, fuscous, pubescent, two thirds of a line long. *Habit* that of *Mentha*.

16. *JUSTICIA villosa*. Corolla bilabiata. Folia elliptica. Calyx quadrifidus, lacinia inferiori apice bifida.—Corolla bilabiate. Leaves elliptic. Calyx quadrifid; lower segment bifid at the end. *Obs.* 8443. Specimen from Wright, gathered by Roxburgh in India. *J. tomentosa*. *Roxb. ind.* i. 132.

*Branches* villose. *Leaves* hirsutulous. *Spikes* ovato-oblong, villose, imbricate. *Bracteae* solitary, ovate, villose. *Calyx* quadripartite, villose, somewhat shorter than the bractea; segments subulato-lanceolate; the uppermost twice as broad as the rest. *Corolla* infundibulate; upper lip oblong, bifid; segments oblong, acute; lower lip trifid; segments obovate, incumbent. *Antherae* didymous; cells roundish. *Capsule* bilocular, bivalve, fusiformi-conical, as long as the bracteae; cells with 6 seeds; dissepiment contrary.

17. *JUSTICIA periplocifolia*. Corolla bilabiata. Folia elliptico-ovata. Racemi axillares terminalesque.—Corolla bilabiate. Leaves elliptico-ovate. Racemi axillary and terminal. *Specimen* in Mr. Knowlton's herbarium, gathered in Chelsea garden.—*Linn. a Willd.* i. 98; *a Roem. & Schult.* i. 157; *a Spreng.* i. 83. *Willd. enum.* i. 27. *Link. enum.* i. 31. *Vahl. enum.* i. 147. *Hort. kew. ed. II.* i. 40.

*Stem* striate; internodia contracted at the base; the contraction longer than the breadth of the stem.

18. *JUSTICIA crenata*. Corolla bilabiata. Scapus adscendens. Bracteae florales extimae ovatae. Folia crenata.—Corolla bilabiate. Scapus ascending. Outer bracteae ovate. Leaves crenate. *Obs.* 12194. Specimen from Wright, gathered by Roxburgh in India. The account of the limb of the corolla from *J. acaulis*. *Roxb. ind.* i. 120. *Linn. fl. suppl.* 84; *a Willd.* i. 84.

*Elytraria crenata*. *Vahl. enum.* i. 106. *Linn. a Roem. & Schult.* i. 189; *a Spreng.* i. 77.

*Elytraria indica*. *Pers. ench.* i. 23.

*Plantaginifolia*. *Pluk. amalth.* 175; *phyt. t.* 438. *f.* 1.

*Leaves*, veins of the back hirsutulous. *Scapus* bracteate, terete, 6 inches long. *Bracteae* ovato-lanceolate, acute, amplexicaul, adprest. *Spike* terminal, linear. *Bracteae* in threes, acute, hirsutulous, the outer amplexi caul, patulous; 2 lateral bracteae linear-lanceolate. *Calyx* pentaphyllous and hexaphyllous, subcoherent and incumbent at the base, membranaceous, hirsute and greenish at the end, unequal, the largest lanceolate, multinervose, the rest lanceolato-linear, narrower. *Corolla* tubulate.

19. *JUSTICIA ligulata*. *Corolla* bilabiata, labio inferiore apice trifido. *Involucra* sexbracteata, bractea majore caeteris sesquialongiore.—*Corolla* bilabiate; lower lip trifid at the end: *Involucra* sexbracteate; the larger bractea 1 and  $\frac{1}{2}$  as long as the rest. *Obs.* 8437. Specimen from Wright, gathered by Roxburgh in India.—*Lam.*

*J. bicalyculata*. *Vahl. enum.* i. 113. *Roxb. ind.* i. 127.

*Linn. a Willd.* i. 81; *a Roem. & Schult.* i. 148; *a Spreng.* i. 84. *Schult. obs.* 5. *Willd. enum.* i. 24.

*Link. enum.* i. 29. *Roxb. ind.* i. 127. *Hort. kew. ed. II.* i. 35.

*J. malabarica*. *Hort. kew. ed. I.* i. 27.

*Dianthera bicalyculata*. *Retz. obs.* i. 10.

*Dianthera malabarica*. *Linn. fl. suppl.* 85. *Gaertn.* i. 240. *t.* 51.

*Stem* hexagonal, hispid. *Leaves* elliptico-ovate, scabrous; upper and lower surfaces indistinguishable, with adprest hairs and linear tubercles and prominent veins on both sides. *Panicles* terminal; branches opposit, trichotomous short. *Pedicles* mostly geniculate at the very end. *Involucra* cylindric, rigid, hispidous, pedunculate; longer bractea lanceolato-linear, the shorter linear-ensate, membranaceous at the margin. *Calyx* quinquepartite, hirsute, somewhat shorter than the shorter bracteae, submembranaceous; segments



ensate. *Corolla*  $2\frac{1}{2}$  as long as the calyx; upper lip ovate; lower lip oblong, trinervose; segments rounded, incumbent. *Stamina* as long as the upper lip. *Filaments* hirsutulous. *Antherae* bilocular; cells distinct, oval, one lower than the other. *Style* filiform. *Stigma* clavate, glabrous.

20. *JUSTICIA Betonica*. *Corolla* bilabiata. *Folia* ovata. *Spicae* terminales. *Bracteeae* ovatae reticulatae. —*Corolla* bilabiate. *Leaves* ovate. *Spikes* terminal. *Bracteeae* ovate, reticulate. *Obs.* 12195. Specimen  $1\frac{1}{2}$  foot long, from Wright, gathered by Roxburgh in India. —*Linn. sp. i.* 21; *a Willd. i.* 96; *a Roem. & Schult. i.* 160; *a Spreng. i.* 78. *Vahl. enum. i.* 156. *Burm. N. ind.* 8. *Roxb. ind. i.* 129. *Hort. kew. ed. II. i.* 41. *Roth. sp. 17.* (*Horn. i.* 23 does not accord.)  
*J. Pseudo-Betanica. Roth. sp. 17, cop. in Linn. a Roem. & Schult. i.* 160; *a Spreng. i.* 80.  
*J. Linn. zeyl. 7. n.* 18.

*Leaves* denticulate; teeth obtuse; surface with microscopic linear tubercles. *Calyx* quinquepartite; segments ensate trinervose microscopically scabrous with granular hairs. *Corolla* bilabiate,  $2\frac{1}{2}$  as long as the calyx; tube dilatate  $1\frac{1}{2}$  as long as the calyx; upper lip triangulari-ovate truncate emarginate; lower lip tripartite; segments oblong. *Stamina* 2, inserted below the commissures, reaching nearly to the end of the upper lip. *Filaments* dilated and subbifid at the end. *Antherae* bilocular fulvous; cells distinct; upper cell semiorbicular terminal; lower cell oblong calcarate deflex longer; spur fusiform white, nearly as long as the cell. *Pollen* oval, in both cells of the antherae.

21. *JUSTICIA tranquebarensis*. *Corolla* bilabiata. *Folia* elliptica ovalia obovataque. *Flores* solitarii spicatique, spicis terminalibus; foliis floralibus ovalibus. —*Corolla* bilabiate. *Leaves* elliptic oval and obovate. *Flowers* solitary and spicate. *Spikes* terminal; floral leaves oval. *Obs.* 8439. Specimen from Wright gathered and named *J. orixensis* by Roxburgh in India. —*Obs.* 12199. Specimen from Wright gathered by Roxburgh in India.

*J. orixensis.* *Roxb. ind.* i. 183. *Linn. a Spreng.* i. 82.

*Stem* pubescent, sometimes hoary; hairs incurvate.

*Leaves* opposit, hirsutulous, microscopically tuberculate with linear tubercles; margin entire. *Petioles* shorter than the breadth of the lamina. *Spikes* linear, 2 to 4 inches long, pedunculate. *Bracteae* in threes, hirsutulous, the outermost oval subacute, sometimes obovate and retuse, to  $2\frac{1}{2}$  tenths long; the inner ensate, shorter than the calyx. *Calyx* quinquepartite, pubescentulous; segments ensate subtrinervose. *Corolla*  $1\frac{1}{2}$  as long as the calyx; upper lip triangulari-ovate, bifid at the end; lower lip cuneate subtrifid, somewhat longer, with 2 rows of transverse plicae at the base; segments rounded crenate. *Stamina* 2, as long as the upper lip, inserted at the commissures. *Antherae* bilocular; cells contiguous, the upper cuspidate, the lower calcarate; spur somewhat shorter than the cell. *Capsules* elliptic, bivalve; cells dispermous; valves with 2 hooked receptacles. *Seeds* unripe, semiorbicular, echinate, emarginate at the base, with an acute angle, stonecoloured; mucrones recurvate, crowded. *Corculum* minute, orbicular. *Obs.* 8439.

*α incana* (Variation) *Stem* hoary with straightish hairs. *Leaves* obovate, levigate. *Obs.* 12199.

*J. tranquebarensis.* *Linn. fil. suppl.* 85; *a Willd.* i. 99; *a Roem. & Schult.* i. 165; *a Spreng.* i. 83. *Vahl. enum.* i. 163. *Roxb. ind.* i. 131.

*β tuberculata* (Variation) *Stem* pubescent with curv'd hairs. *Leaves* elliptic, with microscopic linear tubercles. *Obs.* 8439.

## 2. *Corolla nearly regular.*

22. *JUSTICIA nervosa.* *Corolla* subaequalis. *Spicae* imbricatae, axillares terminalesque. *Folia* bracteaeque exteriores ellipticae acuminatae.—Segments of the corolla nearly equal. *Spikes* imbricate, axillary and terminal. *Leaves* and outer bracteae elliptic, acuminate. *Obs.* 8205. In Renishaw garden.—*Obs.* 12045. Specimens in fl. and fr. from Wright, gathered by Roxburgh in India.—*Vahl. enum.* i. 164.

*J. pulchella*. *Gawl. recens.* 1. 41. 43. *Hort. kew. ed.* II. i. 42.

*Eranthemum nervosum*. *Linn. a Roem. & Schult.* i. 174; *a Spreng.* i. 89. *Link. enum.* i. 236.

*Eranthemum pulchellum*. *Andr. rep.* ii. t. 88. *Willd. suppl.* 2. *Roxb. ind.* i. 111; *cor.* ii. 41. t. 177. Represented as smooth and segments of the corolla trinervose with short transverse lines across the ribs. *Ruellia* variants. *Willd. enum.* ii. 657.

*Stem* 5 feet long, erect. *Branches* pubescent, quadrato-terete, 2 of the sides convex, the other 2 twice as narrow, slightly concave; hairs microscopic. *Leaves* petiolate, opposit, obsoletely dentate at the margin, glabrous, with strigaelike elevations on the surface as in *J. montana*. *Spikes* tetragonous. *Bracteae* 3 to each flower, erect, pubescent, those of the fruit ciliate, the outermost white with green veins; the 2 lateral bracteae ovato-ensate, carinate, whitish, membranaceous, thrice as short as the outer. *Calyx* tubular, whitish, semiquinquefid, somewhat longer than the lateral bracteae, plaited; the projecting angles extending from the segments, the deprest angles from the commissures; segments ensate, erect, pubescent at the margin. *Corolla* hypocraterine, deep sky blue; tube filiform, curvd, more than thrice as long as the calyx; limb quinquepartite; segments obovate and oblongo-obovate, retuse, slightly incumbent. *Stamina* nearly even with the corolla. *Filaments* adhering below to the tube of the corolla, above erect, with a subulate erect appendage inserted just above the base. *Antherae* sagittate, bilocular; cells equal. *Germen* subulato-oblong, bilocular; cells dispermous. *Stigma* bifid; segments subulate, the longer thrice as long as the other, hirsutulous. *Capsule* lanceolate, tetragonous, bivalve, compest below; valves septiferous. *Retinacula of the seeds* hamate. *Seeds* orbicular.

23. *JUSTICIA montana*. Corolla subaequalis? Spicae terminales axillaresque. Folia ovata, floralia cordata. Bracteae ensato-lanceolatae, pilis glanduliferis scabridae.—Corolla nearly regular? Spikes terminal and axillary. Leaves ovate, floral leaves cordate.

Bracteae ensato-lanceolate, scabridous with glanduliferous hairs. *Obs.* 12046. Specimen in fr. from Wright, probably gathered by Roxburgh in India. The account of the limb of the corolla from

*Eranthemum montanum*. *Roxb. ind.* i. 110.

*Branches* pubescent. *Leaves* glabrous; face with a number of distinct filiform prominences apparently adpressed strigae forming a part of the surface of the leaves, by transmitted light semitransparent as the veins. *Bracteae* patulous. *Calyx* quinquefid, whitish, membranaceous; segments ensate, hirsutulous. *Corolla* tubular; segments obovate, very short. *Antherae* triangular, bilocular; cells parallel. *Capsules* similar to those of *J. nervosa*, shorter than the bracteae, with 2 and 3 seeds. *Seeds* brown, orbicular, emarginate at the base, cuspidate at the end; margin nervose; sides subsericeous.

24. *JUSTICIA microphylla*. Corolla subaequalis. Rami pubescentes. Folia spatulata pubescentia. Spinae axillares, foliorum longitudine. Pedunculi foliis breviores.—Segments of the corolla nearly equal. Branches pubescent. Leaves spatulate, pubescent. Spines axillary, as long as the leaves. Peduncles shorter than the leaves. *Obs.* 2172. Specimen a foot long gathered by Broughton in Jamaica.—*Vahl. enum.* i. 168, but leaves described as glabrous and peduncles as long as the leaves.

*Eranthemum armatum*. *Linn. a Spreng.* i. 88, but leaves described as obovate and coriaceous.

*Branches* decussate, straight, whitish brown. *Spines* patent, fusiform, pubescent at the base, decussate, to 4 tenths of an inch long, sometimes with lateral spines. *Leaves* linearispatulate, mostly emarginate, 3 tenths of an inch long, costate, veinless. *Peduncles* solitary, axillary, glabrous, shorter than the leaves. *Flowers* glabrous. *Calyx* quinquefid; segments ensate. *Corolla* hypocraterine 4 times as long as the calyx,  $1\frac{1}{2}$  as long as the leaves; tube  $1\frac{1}{2}$  as long as the calyx; limb quinquepartite, somewhat shorter than the tube; segments oblong, multinervose. *Stamina* 2, even with the mouth

of the tube; rudiments of 2 other filaments very short, opposit to the stamina. *Antherae* oblong, bilocular. *Style* filiform, somewhat longer than the tube. *Stigma* simple.

## 20. GRATIOLA.

*Calyx* quinquepartitus. *Corolla* bilabiata, labio superiore emarginato. *Stamina* 4, 2 plerumque abortiva. *Stigma* bilabiatum. *Capsula* bilocularis, bivalvis; dissepimento contrario.—*Corolla* bilabiate; upper lip emarginate. *Stamina* 4, 2 generally abortiv. *Stigma* bilabiate. *Capsule* bilocular, bivalve; dissepiment transverse. *Obs.* 8132. *Bot. mat. med.* i. 34. *Juss.* 121. *Nutt.* i. 8. *Brown, Rob.* i. 435. *L. (Gaertn.)* i. 251. *t.* 53; iii. 188. *t.* 214, represent species in which the dissepiment is parallel.)

1. *GRATIOLA officinalis*. Calyces bracteati, solitarii. Folia serrato-denticulata lanceolata trinervia.—Calyces bracteate, solitary. Leaves serrato-denticulate, lanceolate, trinervose. *Obs.* 8132. *Bot. mat. med.* i. 34. *Linn. a Murr.* 64; *a Willd.* i. 102; *a Roem. & Schult.* i. 129. *Vahl. enum.* i. 88. *Lam. & Dec.* iii. 598; *syn.* 234. *Thuill.* 11. *Gou. monsp.* 66. *Gort. foed.* 7. *Wahl. helv.* 6. *Gmel. C. bad.* i. 45. *Kunth. ber.* 8. *Schlect. ber.* i. 14. *Brandt.* 6. *Fl. dan.* 363. *Honck.* i. 134. *Jacq. vind.* 4. *Will. obs.* 56. *n.* 100. *Willd. ber.* 16; *enum.* i. 29. *Sibth. prodr.* 10. *Moench. marb.* i. 432. *Bluff & Fing.* i. 29. *Host. syn.* 13. *Roth. enum.* i. 65; *germ.* i. 10; ii. *pars* i. 25. *Schrad. germ.* i. 50. *Retz. scand.* 7. *Hort. kew. ed. II.* i. 43. *Mill. Ph. dict. n.* 1. *Corolla* pale yellowish. *G. Kram.* 6. *Hall. hist.* i. 142. *Guett.* ii. 195. *Sauv.* 137. *Dod. purg.* 120, *repr. in Ger. by Johns.* 581. *G. officinarum.* *Rupp. ab Hall.* 243.

*Leaves* decussate, rather oblong below; sides below reflex. *Calyx*, segments lanceolato-ensate, slightly incumbent, trinervose. *Corolla*, tube tetragonous, villose within from a little above the insertion of the two lower stamina to the base of the upper segment; 3 lower sides canaliculate; hairs of the lower part flexuose,

acute, whitish, those below the base of the upper segment tawny, with clavate heads. *Stamina*, two lower nearly twice as long. *Filaments* tawny yellow at the base, whitish above, those of the 2 upper stamina subulate, flat, those of the 2 lower stamina filiform. *Antherae* brownish white, those of the 2 upper stamina bilobate; lobes ovato-oblong, adherent to a membranaceous expansion of the upper end of the filament; antherae of the 2 lower stamina roundish, somewhat longer than the breadth of the filament. *Pollen* whitish, globose. *Pistil* shorter than the tube of the corolla. *Germen* conic, comprest, twoedgd; cells polyspermous; dissepiment inserted into the sides of the valves, horizontal. *Style* slightly attenuate, comprest, twoedgd, binervose, greenish white; ribs extending to the base of the lobes of the stigma. *Stigma* deflex, horizontal, orbicular, concave, bilamellate, whitish; the upper lamella somewhat shorter than the lower.

*Nat.* of Anatolia Italy France Switzerland Germany Holland and Denmark.

## 21. SCHIZANTHUS.

*Capsula* bilocularis, bivalvis. *Corolla* bilabiata, labio superiore quinquefido novemfidoque, labio inferiore trifido. *Calyx* quinquefidus.—*Capsule* bilocular, bivalve. *Corolla* bilabiate; upper lip quinquefid and novemfid; lower lip trifid. *Calyx* quinquefid. *Obs.* 12412. *Pers. ench.* ii. 161. *Linn. a Spreng.* i. 25; *a Roem. & Schult.* i. 54. *Vahl. enum.* i. 171.

1. *SCHIZANTHUS duodecemfidus.* *Corolla* duodecemfida.—*Corolla* duodecemfid. *Obs.* 12412. From Renishaw garden. 2 Sept.

*S. pinnatus.* *Pers. ench.* ii. 161. *Linn. a Roem. & Schult.* i. 137; *mant.* iii. 234; *a Spreng.* i. 38. *Vahl. enum.* i. 171. *Bot. mag. t.* 2404.

*a pinnatifidus.* Leaves mostly pinnatifid. *Obs.* 12412.

Hirsute; hairs with oval heads. *Flowering branches* a foot long, terete. *Leaves* the lower pinnate; folioles serrate; those of the flowering branches pinnatifid. *Racemi* secundose, diffuse, nearly opposit and a little

below the leaves; sessile and on short peduncles. *Pedicles* filiform and glabrous below, thickening and hirsute above, ascending, alternat, as long as the floral leaves. *Bracteae* opposit, at the base of each pedicle, lanceolate oblong and roundish, recurvate, often undentate. *Calyx* quinquepartite; segments linear and spatulate, patulous above. *Corolla* tubulate bilabiate, thrice as long as the calyx, resupinate, hirsutulous; tube twice as short as the calyx; upper lip patent; novemfid; upper segment oblong-subacute, semitubular and purple at the base, yellow with brownish purple linear and roundish spots, purplish blue at the end; lateral segments adjoining to the uppermost falcate oblong whitish below with a square purple spot contiguous to the uppermost segment, bluish purple above; 3 lower segments linear and cuneato-linear, purple at the base, whitish in the middle purple at the end; lower lip somewhat shorter than the upper, erect, purple, tripartite, pubescent; intermediate segment cuneate bilobate; lateral segments somewhat longer, falcate, flat, bowed laterally inwards, connivent. *Stamina* 2, with the rudiments of 2 others. *Filaments* purple and white, shorter than the lower lip, hirsute below, inserted into the tube of the corolla at the base of the lateral segments of the lower lip. *Antherae* oval, bilocular, olivecoloured. *Pollen* ashcoloured, oblong when moistened trigono-globose, many discharging minute particles. *Rudiments of stamina* opposit to and 4 times shorter than the stamina. *Filaments* subulate, hirsute, purple. *Antherae* white, minute, without pollen. *Pistil* as long as the calyx. *Germen* oblong. *Style* filiform, purple. *Stigma* simple. *Vasa deferentia* 2, purple. *Capsule* stil unripe, bilocular, oblong, whitish, torose, half as long as the calyx; cells polyspermous; columella central.

*β pinnatus* (Variation) Leaves pinnate. *Obs.* 12495. Specimen in Mrs. M. Stovins herbarium gathered in Whitburn garden in Aug.

*S. porrigens.* *Bot. mag. t.* 2521.

*Folioses* pinnatifid and entire; segments spatulato-linear.

22. CALCEOLARIA.

*Corolla* ringens inflata. *Calyx* quadripartitus. *Capsula* bilocularis quadrivalvis.—*Corolla* ringent inflated. *Calyx* quadripartite. *Capsule* bilocular quadrivalve. *Obs.* 6547. *L.*

1. *CALCEOLARIA salvifolia*. Pubescens. Folia elliptica petiolata crenata rugosa, margine deflexo, facie opaca, dorso oleariis rubiginosa. Petioli alati connati. Panicula trichotoma.—Pubescent. Leaves elliptic petiolate crenate rugose; margin deflex; face dull; back with rubiginous olearia. Petioles winged connate. Panicle trichotomous. *Obs.* 12547. Gatherd by Mr. Baker in Oxford garden. 25 June.—*Obs.* 12494. Specimen of a leaf and branch 8 inches long in Mrs. M. Stovins herbarium, gatherd in Renishaw garden, 2 May.—*Pers. ench.* i. 17. Leaves varying from soil and age.
  - α rugosa*. Leaves rugose. *Obs.* 12547.
  - C. rugosa*. *Vahl. enum.* i. 188, from Ruis and Pav. *Linn. a Roem. & Schult.* i. 188; *a Spreng.* i. 46.
  - C. integrifolia*. *Linn. veg.* 61; *a Murr.* 65. *Linn. fil. suppl.* 86, but the stem described as pilose.
  - Pedicles* filiform. *Calyx* quadrifid; segments ovate. *Corolla*, lips globose inflated. *Pollen* oblong, when wetted globose. *Style* filiform as long as and twice as narrow as the filaments.
  - β tenuifolia*. Leaves levigate thin. *Obs.* 12494.
  - Pubescentulous; hairs microscopic, incurvate. *Leaves*, the lower ovato-elliptic, unequally crenate, entire at the very base; floral leaves denticulate. *Olearia* fulvous, those on the back of the leaves crowded, those of the calyces and pedicles scatterd. *Corymbi* opposit, axillary and terminal; axillary corymbi flowering before the terminal. *Pedicles* filiform. *Corolla* yellow, 4 tenths of an inch long; lips globose.
2. *CALCEOLARIA obovata*. Folia integerrima spatulato-obovata nervosa.—Leaves entire at the margin, spatulato-obovate, nervose. *Obs.* 5216. Specimen gatherd in Upton garden.



**C. Fothergillii.** *Hort. kew. ed. I. i. 30. t. 1; ed. II. i. 44. Bot. mag. t. 348. Linn. a Willd. i. 108; a Roem. & Schult. i. 179; a Spreng. i. 44.*

Pubescent; hairs glanduliferous, very short. *Stem* 8 inches long. *Leaves* opposit, tapering down into petioles, villose at and towards the margin, septemner-vose at the base; villi articulated. *Floral leaves* sub-acuminate. *Peduncles* terminal, in pairs, as long as and twice as long as the foliiferous part of the stem. *Calyx* quadrifid; segments ovali-ovate, the upper shorter and the lower longer than the lateral segments. *Corolla*, upper lip shorter than the calyx, lower lip nearly thrice as long as the calyx.

3. **CALCEOLARIA pinnata.** *Folia* pinnata pinnatifidaque pubescentia obtusiuscula. *Pedunculi* bini solitariique. *Leaves* pinnate and pinnatifid pubescent rather obtuse. *Peduncles* in pairs and solitary. *Obs.* 6547. In Maresbrook garden & Perryhill nursery.—*Linn. mant. ii. 171; a Willd. i. 106; a Roem. & Schult. i. 187; a Spreng. i. 47. Link. enum. i. 27. Willd. enum. i. 29. Vahl. enum. i. 187. Hort. kew. ed. I. i. 29; iii. 500; ed. II. i. 44. Gaertn. i. 296. t. 62. Bot. mag. t. 41. Moench. marb. i. 431.*

*Fagelia flavicans.* *Linn. a Gmel. ii. 40.*

Herbaceous, pubescent. *Stem* branched from the base; branches erect. *Calyx* tetraphyllous and partito-quadrifid, when in fruit horizontal; segments ovate, 2 somewhat narrower. *Corolla* brimstoncoloured; lips inflated, the larger subglobose, bending over the smaller and the stamina, the smaller lip very small deprest bifid. *Stamina* 2, erect, projecting through the fissure of the smaller lip, inserted into the margin of the tube of the corolla. *Filaments* very short with a transverse filament at the end of each. *Antherae* unilocular, oblong, 2 to each filament, one at each end of the transverse filament, the lowermost twice as large. *Pollen* yellow. *Capsule* bilocular and trilocular, quadrivalve, ovate, truncate at the base, pyramidal above, bisulcate; dissepiment formed by the inflected margins of the valves which form the furrows; valves at the sutures opening to the base, opening half

way at the furrows. *Seeds* oval, very slightly curved, one 6th of the tenth of an inch long, brownish white, striate, reticulate. *Perisperm* whitish. *Corculum* oval, white.

23. PINGUICULA.

*Corolla* ringens. *Calyx* quinquefidus. *Capsula* unilocularis, semibivalvis.—*Corolla* ringent. *Calyx* quinquefid. *Capsule* unilocular, semibivalve. *Obs.* 4866. *Gaertn.* ii. 140. *t.* 112. *L.*

The spur varying in length does not afford a good specific character. Its length should be measured from the base of the corolla.

1. PINGUICULA *alpina*. Corollae calcar conicum. Labii trifidi corollae lacinia intermedia retusa. Capsula oblonga.—Spur of the corolla conic; intermediate segment of the trifid lip retuse. Capsule oblong. *Obs.* 12317. Specimen gathered by Mr. Baker in Switzerland. The account of the capsule from *Smith in cycl.* xxvii. n. 5. *Linn. suec.* 9; *sp.* i. 25; *a Willd.* i. 111; *a Roem. & Schult.* i. 191; *a Spreng.* i. 48. *Retz. scand.* 7. *Scop. carn.* i. 25. *Roth. enum.* i. 66; *germ.* i. 10; ii. *pars* i. 27. *Host. fl.* i. 20; *syn.* 14. *Hort. kew. ed.* II. i. 45. *Honck.* i. 138. *Lam. & Dec.* iii. 576; v. 404; *syn.* 230. *Bluff & Fing.* i. 30. *Vahl. suec.* i. 13; *lapp.* 9; *helv.* 6; *carp.* 9. *Sut.* i. 13. *Pollin.* i. 24. Capsule rostrate.

*P. flavescens.* *Schrad. germ.* i. 53.

*P. Linn. lapp.* 11. *t.* 12. *f.* 3. *Hall. hist.* i. 129. *Ger. Lud.* 292. *var.*

*Roots* and *Leaves* similar to those of *P. ovata*. *Scapi* 2 to 3 inches long, pubescentulous; hairs scattered, very short, globiferous. *Corolla* to  $\frac{1}{2}$  inch long; spur somewhat shorter than the body of the corolla.

2. PINGUICULA *ovata*. Corollae calcar fusiforme. Labii trifidi corollae laciniae obovatae. Calycis labium superius trifidum. Capsula ovata.—Spur of the corolla fusiform. Segments of the trifid lip of the corolla obovate; upper lip of the calyx trifid. Capsule ovate. *Obs.* 4866. On Magnesian limestone. 7 June.

—*Obs.* 1698. On the side of Winandermere in Westmorland on schistus. June.—*Bot. mat. med.* i. 37.

*P. vulgaris.* *Linn. a Willd.* i. 110; *a Roem. & Schult.* i. 189; *a Spreng.* i. 48. *Bluff & Fing.* i. 30. *Schlect. ber.* i. 14. *Grev.* 5. *Willd. enum.* i. 29. *Vahl. enum.* i. 191. *Smith. brit.* i. 27; *engl.* i. 28. *Schrad. germ.* i. 52. *Roth. enum.* i. 66; *germ.* i. 11; *ii. pars* i. 25. *Sut.* i. 13. *Gaertn.* ii. 140. *t.* 112. *Wahl. lapp.* 10; *carp.* 9; *helv.* 6; *suec.* i. 13. *Host. fl.* i. 20; *syn.* 14. *Lightf.* i. 76; *ii.* 1131. *Kunth. ber.* 9. *Retz. scand.* 7. *Hook. scot.* i. 8. *Honck.* i. 136. *Gou. monsp.* 66. *Thuill.* 11. *Lam. & Dec.* iii. 575; *syn.* 230, but the segments of the bifid lip of the corolla described as acute.

*P. Ger. Lud.* 292. *Hall. hist.* i. 128.

*Leaves* lanceolate, recurvate and revolute, whitish green, whitish at the base,  $1\frac{1}{2}$  inch long, pubescent on the face, glabrous on the back; margins inflex and involute; hairs erect, filiform and attenuate, pellucid, capitate; heads oval, deprest, reddish. *Scapi* uniflorous, filiform, attenuate, erect, subincurvate, after flowering strict, pubescent, brownish purple, whitish at the base, 3 to 6 inches long, flowering in succession to 5, growing after flowering to 8 inches; hairs purplish, similar to those of the leaves. *Calyx* bilabiate, oblique, purplish brown, pubescent on the face; segments concave; upper lip trifid; segments ovato-triangular; lower lip bifid and trifid; segments obtuse, sometimes one obtuse and one acute. *Corolla* bilabiate, bluish purple; segments oblongo-ovate; upper lip bipartite; segments incumbent; lower lip trifid, twice as long as the upper, straight; throat open, pubescent; hairs clavate, articulated, purplish white; heads oblong, transversely sulcate; spur somewhat shorter than and as long as the body of the corolla, subcurvate and straight, when doubled back extending beyond the upper lip, not reaching to the end of the lower lip. *Stamina* 2, inserted into the receptacle, twice as short as the calyx. *Filaments* purplish white, terete, laterally ascending at the base, tuberculate on the back. *Antherae* oval, oblique, unilocular,  $1\frac{1}{2}$  as broad as the

filaments, tawny white, reticulate, bursting with a longitudinal oval opening at the end. *Pollen* whitish, globose. *Pistil* oblique, inclining to the upper lip of the corolla, somewhat longer than the upper lip of the calyx. *Germen* roundish, pubescent. *Style* terete, very short, whitish. *Stigma* bilabiate, purplish white, pubescent at the margin, permanent, not enlarged; upper lip subulate, erect; lower lip flabellate, broader than the germen, longer than the upper lip, deflex, shading the ends of the stamina, the pollen at length adhering to the inflected margin. *Capsule* unilocular polyspermous, acute. *Seeds* fixt to a columella. *Obs.* 4866.—*Corolla*  $\frac{1}{2}$  inch long; spur  $3\frac{1}{2}$  tenths long. *Obs.* 8005. Specimens gathered on Cannock heath near Stafford on gravel.

♂ *grandiflora*. Corolla 8 tenths of an inch long. *Obs.* 11997. Specimen in Mrs. M. Stovins herbarium gathered by Mr. Baker in Switzerland.

*P. grandiflora*. *Lam. & Dec.* iii. 575; v. 404; *syn.* 230. *Linn. a Willd.* i. 110; *a Roem. & Schult.* i. 189; *a Spreng.* i. 48. *Vahl. enum.* i. 191. *Smith. engl.* i. 29. *Schleich.* 26. *Pollin.* i. 24. *Hook. scot.* i. 8, under n. 1.

*Scapi* 3 to 5 inches long. *Calyx*, segments triangulari-ovate.

3. *PINGUICULA subaequalis*. Corollae calcar cylindricum horizontale. Corollae calycisque laciniae subaequales. Capsula globosa.—Spur cylindric, horizontal. Segments of the corolla and calyx nearly equal. Capsule globose. *Obs.* 4865. Specimen gathered by Pulteney in the west of England.—*Obs.* 11998. Specimen in Mrs. M. Stovins herbarium gathered near Glastonbury in Somersetshire.—*Obs.* 8006 Specimen in fr. gathered by Broughton in Britain.—The account of the capsule from

*P. lusitanica*. *Smith. brit.* i. 26; iii. 1384; *engl.* i. 28; *in cycl.* xxvii. n. 1. *Engl. bot.* t. 145. *Linn. sp.* i. 25; *a Murr.* 65, where read *P. cornubiensis* flore &c; *a Willd.* i. 109; *a Roem. & Schult.* i. 190. 581; *a Spreng.* i. 48. *Link in tracts* 59. *Vahl. enum.* i. 192. *Hook. scot.* i. 8. *Lam. & Dec.* v. 405.

*P. villosa.* *Huds.* 8. 654. *Lightf.* i. 77. t. 6 ; ii. 1138. 1133. *Bot. arr.* i. 17.

*P. flore minore.* *Raii syn.* \*281. *Llwydin ph. tr. abr.* by Jones v. part. ii. 127 ; by *Hutt.* v. 701. Mountains of Galloway and Mayo.

*P. cornubiensis.* *Raii hist.* i. 752.

*P. minima.* *Merr.* 94. In Cornwall.

*Scapus*  $1\frac{1}{2}$  to 4 inches long, filiform, pubescentulous ; hairs capitate, horizontal ; heads globose black, often sessile. *Leaves* oblong, veined, pubescent on the face ; glabrous on the back ; hairs globiferous, very short. *Corolla* tawny yellow, 2 to  $2\frac{1}{2}$  tenths of an inch long ; segments emarginate ; spur obtuse, somewhat shorter than and at right angles with the body of the corolla, thrice as long as the calyx.

*Nat.* of Portugal and the western coasts of Britain and Ireland.

## 24. UTRICULARIA.

*Corolla* ringent, calcarate. *Calyx* bipartite. *Capsule* unilocular, circumscinded. *Linn. a Roem. & Schult.* i. 57. *Obs.* 5044. *Gaertn. C.* iii. 108. t. 198. *L.*

1. *UTRICULARIA vulgaris.* Leaves setose at the margin ; setae mostly solitary. Spur of the corolla conical ; upper lip as long as the palate. *Obs.* 4402. Specimen gathered by Broughton in Britain.—*Obs.* 5044. From the Car a morass near Doncaster.—*Obs.* 9970. Specimen gathered by Salt near Doncaster.—The account of the corolla from *Wahl. ups.* 8 ; *helv.* 7. *Linn. a Willd.* i. 112 ; *a Roem. & Schult.* i. 195 ; *a Spreng.* i. 51. *Poll.* i. 21. *Gaertn. C.* iii. 108. t. 198. *Roth. enum.* i. 68 ; *germ.* i. 10 ; ii. *pars* i. 27 ; *catalect.* ii. 2. *Pollin.* i. 25. *Wallr. sched.* 23. *Kunth. ber.* 9. *Lam. & Dec.* iii. 574 ; *syn.* 230. *Lightf.* i. 77. *Hook. scot.* i. 8. *Host. fl.* i. 21 ; *syn.* 14. *Willd. ber.* 15 ; *enum.* i. 29. *Burm. N. ind.* 11. *Vahl. enum.* i. 198. *Schrad. germ.* i. 54. *Schlect.* i. 15. *Smith. brit.* i. 28 ; *engl.* i. 30. *Engl. bot.* t. 253. *Bot. arr.* i. 18. The fig. referred to was I believe never engraved.  
*U. vulgaris major.* *Linn. succ.* 9 ; *sp.* i. 26.

*Lentibularia vulgaris.* *Moench. marb.* i. 521. *Tourn. paris.* 479. *Vaill. paris.* 114.

*U. Hall. hist.* i. 128. n. 290.

*Lentibularia.* *Dill. ap. Raii syn.* \*286.

*Millefolium aquaticum*, flore luteo galericulato. *Lob. ic.* i. 791, *cop. in Bauh. J.* iii. 783, & *Park. theatr.*

1258, with an additional racemus in fr. and repr. in

*Millefolium palustre.* *Ger. by Johns.* 828.

*Leaves*, segments linear. *Setae* acicular, twice and thrice as long as the breadth of the segments of the leaves, patulous. *Racemi* pedunculate, from 2 to 4 inches long. *Peduncle* from 4 to 8 inches long. *Flowers* alternat. *Bracteae* solitary, 1 at the base of each pedicle, 2 and 3 below the insertion of the pedicles. *Calyx*, upper lip ovate; lower lip bifid at the end; segments obtuse. *Obs.* 5044.

2. *UTRICULARIA intermedia.* *Foliorum* laciniæ dentatæ, dentibus setigeris, setis fasciculatis solitariisque. *Corollae* calcar conicum; labio superiore palatum superante.—*Leaves* dentate; teeth setigerous; *setae* fasciculate and solitary. Spur of the corolla conic; upper lip extending beyond the palate. *Obs.* 4403. Specimen without fructifications gathered by Broughton in Britain.—*Obs.* 12001. A racemus adherent to a specimen of *U. vulgaris* gathered by Salt near Doncaster. The account of the corolla from *Wahl. lapp.* 11. *Vahl. enum.* i. 198. *Linn. & Roem. and Schult.* i. 195; *a Spreng.* i. 51. *Lam. & Dec.* v. 404. *Schrad. germ.* i. 55. *Schlect. ber.* i. 15. *Kunth. ber.* 9. *Roth. enum.* i. 68; *catalect.* ii. 2. *Hook. scot.* i. 9. *Smith. engl.* i. 30. *Host. fl.* i. 21.

*U. media.* *Wahl. ups.* 8.

*U. vulgaris minor.* *Linn. suec.* 9; *sp.* i. 26.

*Leaves* laciniate, costate, reticulate; teeth ensate; *setae* fasciculate in pairs and solitary; *setae* acicular. *Obs.* 4403.—*Racemus* triflorus,  $\frac{1}{2}$  inch long, pedunculate. *Peduncle* filiform. *Bracteae* triangulari-oval, 1 at the base of each pedicle, 2 on the peduncle at equal distances below the racemus. *Pedicles* subcernuous,  $1\frac{1}{4}$  tenth of an inch long. *Calyx* with patulous seg-

ments. *Corolla*  $2\frac{1}{4}$  tenths of an inch long. *Obs.* 12001.

3. *UTRICULARIA minor*. Foliorum laciniae cuspidatae, cuspidate setaceo. Corollae calcar carinatum; labio superiore palatum aequante.—Segments of the leaves cuspidate; cuspidate setaceous. Spur of the corolla carinate. Upper lip of the corolla as long as the palat. *Obs.* 12000. Specimen gathered by Davies in Anglesey.—*Obs.* 9971. Specimen gathered by Mr. Williams on Sunderland moor near Altringham in Lancashire. The account of the corolla from *Wahl. ups.* 9. *Linn. suc.* 9; *sp.* i. 26; *a Willd.* i. 112; *a Roem. & Schult.* i. 196; *a Spreng.* i. 51; *mant.* ii. 5. *Willd. ber.* 15. *Schrad. germ.* i. 56. *Vahl. enum.* i. 199. *Schlect.* i. 16. *Pollin.* i. 26. *Smith. brit.* i. 28; *engl.* i. 31. *Engl. bot. t.* 254. *Host. fl.* i. 22. *Bot. arr.* i. 19. *Poll.* i. 21. *Roth. enum.* i. 69; *germ.* i. 11; ii. *pars* i. 28; *catalect.* ii. 2. *Retz. scand.* 7. *Krock.* i. 36. *Kunth. ber.* 9. *Lightf.* i. 78; ii. 1115. *Hook. scot.* i. 9. *Lam. & Dec.* iii. 574; *syn.* 230. *Huds.* 9. *Relh. ed. I.* 9. *Dav.* 4. *U. Hall. hist.* i. 128. *n.* 291.

*Lentibularia minor*. *Vaill. paris.* 114. *Dill. ap. Raii syn.* \*286.

*Millefolium palustre galericulatum minus*. *Pluk. alm.* 251; *phyt. t.* 99. *f.* 6.

*Leaves*, segments linear, entire at the margin, papyraceous; cuspidate transparent very short. *Obs.* 9971. —*Racemus* with 4 flowers, pedunculate. *Peduncle* filiform, strict, 3 inches long. *Flowers* distant,  $1\frac{1}{4}$  tenth of an inch long. *Pedicles* filiform, after flowering patulous and erect. *Obs.* 12000.

## 25. LYCOPUS.

*Corolla* tubulata quadrifida subbilabiata, lacinia superiori emarginata. *Stamina* distantia. *Capsulae* 4 clausae monospermae.—*Corolla* tubulate quadrifid; upper segment emarginate. *Stamina* distant. *Capsules* 4, not opening, monospermous. *Obs.* 5304. *Bot. mat. med.* i. 42. *L.*

1. **LYCOPUS europaeus.** Folia inferne pinnatifida, superne serrata incisaque.—Leaves pinnatifid below, serrate and incise above. *Obs.* 5304. *Bot. mat.* i. 42. *Linn. a Willd.* i. 120; *a Roem. & Schult.* i. 206; *a Spreng.* i. 54. *Wahl. carp.* 9; *ups.* 10; *suec.* i. 15. *Vahl. enum.* i. 211. *Willd. enum.* i. 30; *ber.* 17. *Bieb.* i. 16; ii. 458. *Schrad. germ.* i. 57. *Link. enum.* i. 18. *Asso.* 3. *Scop. carn.* i. 26. *Honck.* i. 144. *Lightf.* i. 79. *Sibth. prodr.* i. 12. *Hook. scot.* i. 9. *Smith engl.* i. 34. *Loefl.* 11. *Lam. & Dec.* iii. 505; *syn.* 217. *Roth. enum.* i. 70; *germ.* i. 11; ii. *pars* i. 28. *Thuill.* 13. *Host. fl.* i. 22; *syn.* 14. *Gmel. C. bad.* i. 53. *Schlect. ber.* i. 16. *Kunth. ber.* 10.

*L. aquaticus.* *Moench. marb.* i. 370.

*L. palustris.* *Gou. hort.* 15; *monsp.* 63.

*L. Hall. hist.* i. 97. *Ger. Lud.* 257.

*Marrubium aquaticum.* *Trag.* 9, *cop. in Dalech.* i. 1065. *Lob. obs.* 283, *repr. in ic.* i. 524.

*Leaves* lanceolate. *Calyx* tubular; segments acuminate, trinervose, subspinose at the end. *Corolla* subbilabiate, whitish; upper segment emarginate; lower segments with irregular purplish crimson dots. *Capsules* not opening, obovato-cuneiform, flattish, convex on the back, slightly angular on the face; closely covering the seed, and appearing as an outer coat, fuscous and very thin on the sides, suberose and whitish tawny along the margin from a little above the base. *Seed* obovate, slightly comprest, coriaceous, nearly opaque, whitish. *Nucleus* obovate, slightly acuminate at the base. *Indusium* rufescent and tawny whitish, semitransparent, reticulate. *Chalaza* rufous, linear, in the center of one of the sides. *Corculum* naked, obovate, with a slight indentation at the base of the rostellum, whitish, shining, granular; granules small. *Cotyledons* 2, obovate, cordate at the base; angles at the base acute, embracing the rostellum. *Rostellum* ovate.

## 26. ZIZIPHORA.

*Capsulae* 4, monospermae clausae. *Corolla* bilabiate, labio superiore integro, inferiore trifido. *Calyx*



fauce barbata.—*Capsules* 4, monospermous, not opening. *Corolla* bilabiate; upper lip entire; lower lip trifold. *Calyx*, throat bearded. *Obs.* 12221. *Pers. ench.* ii. 129. *Juss.* 111. *Gaertn.* i. 316. t. 66. *L.*

1. *ZIZIPHORA capitata*. Flowers terminal. *Obs.* 12221. Specimen from Dr. Heise.—*Obs.* 12222. Specimen gathered by Broughton in a British garden.—*Linn. sp.* i. 31; *mant.* 317; *a Willd.* i. 123; *a Roem. and Schult.* i. 209; *a Spreng.* i. 55. *Pers. ench.* ii. 129. *Vahl. enum.* i. 216. *Bieb.* i. 17. *Moench. marb.* i. 370. *Gaertn.* i. 316. t. 66. *Hort. kew. ed. I.* i. 35; *ed. II.* i. 45. *Link. enum.* i. 17. *Sibth. prodr.* i. 12.

*Clinopodium fistulosum pumilum*. *Pluk. alm.* 111; *phyt. t.* 164. f. 4, *cop. in*

*Clinopodium pumilum chalepense purpureum, brevior folio*. *Mor. & Bob.* iii. s. 11. t. 8. f. 5.

Pubescent, branched; hairs incurvate. *Leaves* lanceolate, opposit, petiolate; floral leaves ovato-lanceolate and lanceolate; in fours, incumbent and distinct, those terminating the stem more ovate, ciliate. *Flowers* fasciculate, subsessile, twice as short as the floral leaves. *Calyx* lanceolato-linear, striate, multinervose, hispid, pubescent, quinquefid at the end; ribs broader than the interstices; segments ensate, equal, erect, trinervose; throat with a circle of hairs. *Corolla* somewhat longer than the calyx, pubescent; tube decemnervose; upper lip suboval; lower lip trifold; lateral segments similar to the upper lip; intermediate segment oblong,  $1\frac{1}{2}$  as long as the lateral segments. *Stamina* 2, inserted below the commissures of the lower lip.

## 27. MONARDA.

*Capsulae* 4, monospermae, clausae. *Corolla* bilabiate, labio superiore lineari; inferiore trifida, lacinia intermedia elongata.—*Capsules* 4, monospermous, not opening. *Corolla* bilabiate; upper lip linear, lower lip trifold; intermediate segment elongate. *Obs.* 3084. 459. 11767. *Gaertn.* i. 318. t. 66. *L.*

1. *MONARDA fistulosa*. Flores capitati. Folia

ovato-lanceolata punctata hirsuta. Corollae oleariferae. Barba calycis lacinias fere aequans.—Flowers capitate. Leaves ovato-lanceolate, dotted, hirsutulous. Corollae with olearia. Hairs of the calyx nearly as long as the segments. *Obs.* 11767. Specimen gathered by Miss Russel near Fort Erie in Canada. 7 Aug.—*Obs.* 12226. Specimen gathered by Bartram in rich bottoms near rivers in North America.—*Obs.* 6089. In Codnor garden.—*Obs.* 12227. Specimen gathered in Newark nursery.—*Obs.* 12225. Specimen in Broughtons herbarium.—*Obs.* 3083. Specimen from Baron Jacquin under the name of *M. clinopodia*.—*Obs.* 12225. Specimen gathered in Perryhill nursery. 15 Sept.—*Obs.* 3084. In a garden.—*Bot. mat. med.* i. 43. *Hort. kew.* ed. I. i. 36; ed. II. i. 51. *Vahl. enum.* i. 218. *Linn. a Willd.* i. 125; *a Roem. & Schult.* i. 212; *a Spreng.* i. 55. *Gaertn.* i. 318. t. 66. *Schult. obs.* 7. *Pursh.* i. 18.

*M. allophylla.* *Michaux* i. 16, *cop. in Vahl. enum.* i. 219. *Big.* 9.

*M. capitulis terminalibus, caule obtusangulo.* *Mill. Ph. ic.* 122. t. 183. f. 2. Corolla greyish blue.

*α barbata.* Upper lip of the corolla with white villi at the end. Stem pubescent above. *Obs.* 11767. 12225.

*M. mollis.* *Willd. enum.* i. 32. *Pursh.* i. 18. *Linn. a Roem. & Schult.* i. 212.

*Stem* pubescent. *Leaves* dotted on both sides, hoary underneath; costa and veins sericeous. *Calyx* tubular, pubescent, multinervose; mouth quinquepartite; margin nervose; ribs 13; segments setaceous, rigid, erect, somewhat longer than the hairs. *Corolla* thrice as long as the calyx; upper lip ensate; lower lip trilobate; lateral lobes very short, rounded; intermediate lobe elongate, linear, emarginate. *Style* filiform, hirsutulous. *Stigmata* 2, recurvate, equal. *Obs.* 11767.

*β hirsuta* (Variation) Upper lip of the corolla with white villi at the end. Stem hirsute at the joints. *Obs.* 12224. Specimen from Dr. Boehmer.

*Leaves* dotted on both sides.

γ *subbarbata* (Variation) Upper lip of the corolla subbarbate. Leaves dotted on the back. *Obs.* 12225.

δ *ovata* (Variety) Upper lip of the corolla pubescent. Leaves lanceolato-ovate, dotted on the back. Joints of the stem and branches villose. *Obs.* 3084. 12226.

*Leaves* equal and unequal at the base, serrate; serrations acute and inflex at the end. *Flowers* verticillate and terminal. *Calyx*, hairs just shorter than the segments. *Obs.* 12226.

ε *serrata* (Variety) Leaves lanceolato-ovate, serrate; serrations inflex at the end. *Obs.* 6089.

*M. clinopodia.* *Willd. enum.* i. 33.

ζ *subcordata* (Variety) Leaves cordato-ovate, serrate; serrations inflex at the end. *Obs.* 12227.

*M. altissima.* *Willd. enum.* i. 33. *Link. enum.* i. 9.

*M. affinis.* *Link. enum.* i. 9.

*Calyx* tubular, multinervose; mouth quinquepartite, hispid, with a circle of hairs on the inside; hairs as long as the segments; ribs 13. *Corolla* thrice as long as the calyx, 1 inch 2 tenths long, pubescent.

2. *MONARDA coccinea.* Flores capitati. Folia cordata ovataque acuminata, dorso punctata. Barba calycis vix exerta. Flowers capitata. Leaves cordate and ovate, acuminate, dotted on the back. Beard of the calyx scarcely projecting. *Obs.* 459. Specimen gathered in a garden.—*Michaux* i. 16.

*M. didynama.* *Moench. marb.* i. 371. *Bot. mat. med.* i. 44.

*M. didyma.* *Linn. mant.* 317; a *Willd.* i. 125; a *Roem. & Schult.* i. 213; a *Spreng.* i. 56. *Willd. enum.* i. 33. *Vahl. enum.* i. 219. *Pursh.* i. 16. *Hort. kew. ed. II.* i. 51. *Bot. mag. t.* 546. *Ehrh. in tract.* 269.

*M. fistulosa.* *Bot. mag. t.* 145.

*M. purpurea.* *Pursh.* i. 17.

*M. floribus capitulis subdidynamis, caule acutangulo.* *Mill. Ph. ic.* 122. t. 183. f. 1.

*M. Trev. chr.* 31. t. 64.

*Hirsutulous.* *Calyx* tubular, 12 nervose,  $\frac{1}{4}$  inch long, without olearia, scarcely pubescent; mouth with a circle of hairs on the inside; hairs erect, shorter and

fewer than in *M. fistulosa*. *Corolla* 1 inch 4 tenths long; lower lip trifid; intermediate segment elongate linear bifid at the end; lateral segments very short, rounded. *Stamina* inserted into the base of the lower lip. *Antherae* lanceolate, coherent; cells fixt end to end. *Style* longer than the corolla. *Stigmata* 2.

3. *MONARDA lutea*. Flores verticillati. Folia punctata. Corollae oleariferae.—Flowers verticillate. Leaves dotted. Corollae with olearia. *Obs.* 3512. Specimen gatherd in Trianon garden.—*Michaux* i. 16.

*M. punctata*. *Linn. sp. i.* 32; *mant.* 317; *a Willd. i.* 126; *a Roem. & Schult. i.* 214. *Vahl. enum. i.* 220. *Willd. enum. i.* 33. *Pursh. i.* 18. *Bart. phil. i.* 14. *Hort. kew. ed. I. i.* 37; *ed. II. i.* 51. *Link. enum. i.* 10. *Andr. rep. t.* 546. *Bot. reg. t.* 87.

*M. floribus verticillatis, corollis punctatis.* *Linn. ups. 12. Clayt. & Gron. ed. I. 9; ed. II. 6.*

*Clinopodium virginianum.* *Pluk. alm.* 111; *phyt. t.* 24. *f.* 1.

*Clinopodium virginianum angustifolium, lamii flore luteo maculato.* *Mor. & Bob. s.* 11. *t.* 8. *f.* 8. Leaves too narrow.

*Stem* pubescent, 16 inches long. *Leaves* lanceolate, serrate from about the middle; dots crowded. *Calyx* tubular, 4 tenths of an inch long, with 13 ribs; mouth quinquepartite, with a circle of hairs within; segments triangular, erect and reflex; hairs yellow, half as long as the segments; olearia globose, brownish crimson. *Corolla*  $2\frac{1}{2}$  as long as the calyx; olearia globose, rufous; upper lip vaulted, incurvate, emarginate, hispid at the end; lower lip shorter, trifid; lateral segments transversely semiovate; intermediate segment twice as long, broader, oblongo-quadrate, erose at the end. *Antherae* linear, bilocular; cells united at the ends. *Style* filiform, bifid at the end, hirsute from the middle upwards. *Stigmata* 2, fusiform, unequal.

## 28. ROSMARINUS.

*Capsulae* 4, monosparmae, clausae. *Corolla* bilabiata, labio superiore bilobo. *Filamenta* curva, den-

ticulo supra basin.—*Capsules* 4, monospermous, not opening. *Corolla* bilabiate; upper lip bilobate. *Filaments* curvd, with a tooth above the base. *Obs.* 12604. *Tourn. inst.* i. 195. *t.* 92. *L. Hall.* i. 109. Upper segment of the calyx tridentate.

The teeth of the filaments may be considered as the rudiments of the stipitate filaments of *Salvia*.

1. *ROSMARINUS officinalis*. Leaves sessile. *Linn. a Willd.* i. 126; *a Roem. & Schult.* i. 214; *a Spreng.* i. 69. *Bot. mat. med.* i. 45. *Bluff & Fing.* i. 34. *Honck.* i. 147. *Vahl. enum.* i. 221. *Aso* 3. *Willd. enum.* i. 33. *Gou. monsp.* 63. *Lam. & Dec.* iii. 506; *syn.* 218. *Schrad. germ.* i. 59. *Sibth. prodr.* i. 12. *Hort. kew. ed. II.* i. 52. *Seb. & Maur.* 8. *Pollin.* i. 28. *Host. fl.* i. 23. In Dalmatia and the islands of the Adriatic.—*Gmel. C. bad.* iv. 14. In Valentia and Catalonia.—*Loefl.* 302. In Spain.—*Thunb. jap.* 22. Cultivated.

*R. angustifolia. Moench. marb.* i. 372.

*R. Hall. hist.* i. 110. *Ger. Lud.* 257. *Browne, Patr.*

117. Cultivated in Jamaica but does not thrive.

*Rosmarinum coronarium. Lob. obs.* 234, *repr. in ic.* i. 429. *Ger. J.* 1109.

*R. tenuifolius. Stap.* 560.

*Romarin. Pom.* i. 182. *t.*

*Leaves* linear, revolute at the margin, a tenth of an inch broad. *Calyx* bilabiate; upper lip tridentate. *Obs.* 12604. Specimen from Broussonet probably gathered near Montpelier.

## 29. SALVIA.

*Capsulae* 4, monospermae, clausae. *Corolla* bilabiate; labio superiore fornicato emarginato. *Calyx* bilabiatus quinquefidusque. *Filamenta* transverse stipitata.—*Capsules* 4, monospermous, not opening. *Corolla* bilabiate; upper lip vaulted emarginate. *Calyx* bilabiate and quinquefid. *Filaments* transversely stipitate. *Obs.* 5264. *Gaertn.* i. 316. *t.* 66. *Swartz. obs. t. 1. f. 1. Tourn. inst. t. 83. L.*

1. *Upper lip of the calyx entire.*

1. *SALVIA hispanica*. Calycis labium superius integrum. Folia elliptico-ovata serrata. Petioli mucrone-obtuso utrinque basi. Racemi imbricati.—Upper lip of the calyx entire. Leaves elliptico-ovate serrate. Petioles with an obtuse mucro at the base. Racemi imbricate. *Obs.* 5262. Specimen from Dr. Heise. The account of the mucrones at the base of the petioles from *Linn. sp.* i. 37; ii. 1676; *a Gmel.* ii. 46; *a Willd.* i. 141; *a Roem. & Schult.* i. 228; *a Spreng.* i. 60. *Link. enum.* i. 12. *Scop. carn.* i. 29. *Willd. enum.* i. 41. *Schult. obs.* 10. *Vahl. enum.* i. 254. *Gaertn.* i. 316. *t.* 66. *Pollin.* i. 31. *Hort. kew. ed. I.* i. 43; *ed. II.* i. 60.

*S. tetragona. Moench. marb.* i. 373.

*Jungia tetragona. Moench. marb.* ii. 4.

Subhirsute; hairs adpress. *Spikes* compact, to 4 inches long. *Bracteae* ovate, mucronate. *Calyx* deeply subtrifid, novemnervose, 3 tenths long; segments ovate, acuminate. *Corolla* as long as the calyx, pubescent above. *Filaments* calcarate; spur oblong, flat. *Style* pubescent above on one side.

*Nat.* of Spain Italy and Carniola.

2. *SALVIA monadelpha*. Calycis labium superius integrum acutum. Folia elliptico-ovata serrata scabriuscula. Bracteae subulatae, calyce breviores. Stylus corolla que villosi.—Upper lip of the calyx entire acute. Leaves elliptico-ovate, serrate, roughish. Bracteae subulate, shorter than the calyx. Style and corolla villose. *Obs.* 7139. In Perryhill nursery.

Scabriusculous, oleariferous; olearia greenish and yellow. Branches whitish brown. Racemus terminal. Pedicles 2 and 3 in a whirl, very short. Bracteae as long as the pedicles. Calyx tubular; ribs 10; upper lip transversely semiovate, glandular at the end; lower lip bipartite; inner margins contiguous. Corolla purplish brown, now faded, thrice as long as the calyx; upper lip truncate, emarginate; lower lip somewhat shorter, semitrifid; intermediate segment subemarginate. Appendages of the filaments linear, as long as

the antheriferous branches, laterally coherent, not glandular at the end. *Style* somewhat longer than the corolla, with a line of whitish villi along the lower side from a little above the middle, and along the upper side near the end.

3. *SALVIA splendens*. Calycis labium superius integrum. Folia elliptico-ovata acuminata serrata, facie subnitida. Flores racemosi.—Upper lip of the calyx entire. Leaves elliptico-ovate acuminate serrate subnitid on the face. Flowers racemose. *Obs.* 12341. In Highfield garden. Sept. to Dec.—*Linn. a Spreng.* i. 57. *Bot. cab. t.* 1089.

*S. fulgens*. *Rieder* ii. 34. *t.*

*Stem* and *branches* tetragonous, glabrous, 3 feet long; joints surrounded by an annular ridge; ridge convex crimson pubescent ascending between the branch and the base of the ramuli. *Leaves* finely acuminate, glabrous on the back; face pubescentulous, nitidulous like sattin. *Petioles* purplish. *Racemi* scarlet,  $\frac{1}{2}$  foot long, pubescent; hairs scarlet. *Pedicles* villose verticillate, in threes; hairs fusiform, articulated. *Calyx* angular, thrice as long as the pedicles, octonervose, steepd in warm water becoming pink; angles villose; segments triangular, finely acuminate, trinervose; lateral ribs marginal; lower lip semibifid; upper lip ascending, scarcely narrower. *Corolla* twice as long as the calyx, 1 inch 7 tenths long; crimson, when steepd in warm water losing its colour; upper lip vaulted emarginate. *Filaments* linear, biramose; barren branch deflex,  $1\frac{1}{2}$  as long as the antheriferous branch, flatted and obtuse at the end. *Germen* cylindric, quadripartite. *Style* filiform. *Vasa deferentia* 2. *Nectarium* fleshy, ovate, parallel to and as long as the germen; the side next the germen with cavities corresponding to the prominences of the germen.

4. *SALVIA pseudococcinea*. Calycis labium superius integrum. Folia ovata obtuse serrata pubescentia. Caulis ramulique pilosi.—Upper lip of the calyx entire. Leaves ovate obtusely serrate pubescent. Stem and ramuli pilose. *Obs.* 12534. Gatherd by Mr. Baker in Oxford garden. 28 June.—*Linn. a Gmel.* ii. 48; a

*Willd.* i. 141; *a Roem. & Schult.* i. 224; *a Spreng.* i. 58. *Vahl. enum.* i. 238. *Horn.* i. 28. *Willd. enum.* i. 41. *Link. enum.* i. 12.

*Calyx* bilabiate, of 2 colours, the upper longitudinal half purplish black, the lower yellowish green; upper lip ovate acuminate; lower lip bipartite; segments triangular, acute. Nearly allied to *S. coccinea* in the pilose stem and branches.

5. *SALVIA leonuroïdes*. Calycis labium superius integrum. Folia cordata ovataque crenato-serrata. Flores axillares. Stylus barbatus.—Upper lip of the calyx entire. Leaves cordate and ovate, crenato-serrate. Flowers axillary. Style barbate. *Obs.* 2961. In Perrybill nursery. 21 July.—*Vahl. enum.* i. 236. *Linn. a Roem. & Schult.* i. 231; *a Spreng.* i. 61. *Kunth. aequin.* ii. 76.

*S. formosa*. *Linn. a Willd.* i. 140. 362. *Willd. enum.* i. 41. *Hort. kew. ed. I.* i. 43; *ed. II.* i. 60. *Smith in cycl.* xxxi. n. 3. *Bot. mag. t.* 376.

*Jungia formosa*. *Moench. marb.* ii. 140.

*Stem* fruticose. *Leaves* acute and obtuse, ovate-cordate, rather truncate at the base, reticulate on the back; interstices tomentose. *Calyx* pubescentulous; upper lip ovate acute quinquenervose; lower lip somewhat shorter, septemnervose, subbifid; segments acute connivent. *Corolla* scarlet red, nearly twice as long as the calyx; upper lip barbate above; sides inflex; segments of the lower lip reflex; intermediate segment emarginate smaller. *Stamine* 2, equalling the corolla, with the rudiments of 2 others. *Filaments*, the appendages united by their scarlet pubescent margins into an oblongo-lanceolate body concave & canaliculate on the back, convex and canaliculate on the face. *Style* white, crimson pink and barbate above; hairs straight, horizontal on opposit sides.

6. *SALVIA coccinea*. Calycis labium superius integrum. Folia cordata acuta cuspidata serrata subtus villosa-tomentosa, serrationibus acuminatis. Rami pilosi.—Upper lip of the calyx entire. Leaves cordate acute cuspidate serrate villosa-tomentose underneath; serrations acuminate. Branches pilose. *Obs.* 7301.



In Renishaw garden.—*Linn. fl. suppl.* 88; *a Willd.* i. 141; *a Roem. & Schult.* i. 231; *a Spreng.* i. 61. *Vahl. enum.* i. 237. *Willd. enum.* i. 41. *Michaux* i. 15. *Link. enum.* i. 12. *Pursh.* i. 19. *Schult. obs.* 9. *Hort. kew. ed. I.* i. 43; *ed. II.* i. 60. *Murr. ap. commentat. gott.* 1778. t. 1. Leaves so obtusely serrate as to excite a suspicion that it is an intermediate variety between *S. coccinea* and *S. pseudococcinea*.

*Horminum coccineum.* *Moench. carb.* i. 377.

*Stem* pilose; hairs horizontal and deflex. *Flowering branches* patulous. *Leaves* lanceolato-cordate, pubescent on the face, thin. *Racemi* terminal. *Flowers* verticillate, in sixes, 3 on each side. *Bracteeae* subulate, opposit. *Pedicles* somewhat longer than the bracteeae, hirsute; hairs deflex. *Calyx* striate; upper lip ovate acute, rufous, ascending; lower lip bifid, straight, green; segments acute. *Corolla* scarlet, pubescent on the back, twice as long as the calyx. *Filaments* scarlet; appendages filiform, pubescent. *Antherae* purple. *Pollen* white. *Style* whitish below, scarlet above, pubescentulous towards the end. *Stigmata* 2, glabrous. *Seeds* 4, ovato-oval, subcompressd, whitish speckld with blackish brown.

7. *SALVIA tiliacifolia.* Calycis labium superius integrum. Folia ovata cordataque, crenato-serrata. Calycis anguli hirsuti.—Upper lip of the calyx entire. Leaves ovate and cordate, crenato-serrate. Angles of the calyx hirsute. *Obs.* 5263. Specimen gatherd in Upton garden receivd under the above name from Don Ortega.—*Linn. a Willd.* i. 151; *a Roem. & Schult.* i. 230; *a Spreng.* i. 61. *Willd. suppl.* 3. *Vahl. enum.* i. 285. *Kunth. aequin.* ii. 78. *Schult. obs.* 7. *Link. enum.* i. 12. *Hort. kew. ed. II.* i. 55.

*Root* branched. *Stem* 2 inches long. *Leaves* cordate and truncate at the base; crenations obtuse; veins and margin pubescent. *Calyx* tubular, novemnervose,  $1\frac{1}{2}$  to  $2\frac{1}{2}$  tenths long; hairs of the angles whitish; segments ovato-triangular, subcaudate; ribs marginate at the ends of the segments. *Corolla* as long as the calyx; lips of equal length; intermediate lobe of the lower lip emarginate. *Appendages of the stamina* li-

near, glandular at the end, coherent. *Style* glabrous, as long as the corolla.

8. *SALVIA canariensis*. Calycis labium superius integrum emarginatumque. Folia hastata crenulata. Caulis petiolique lanuginosi.—Upper lip of the calyx entire and emarginate. Leaves hastate crenulate. Stem & petioles lanuginose.—*Obs.* 12096. In Darley garden. 10 Aug.—*Obs.* 5278. Specimen from Chapel Allerton garden.—*Linn. sp.* i. 38; *mant.* 319; *a Willd.* i. 144; *a Roem. & Schult.* i. 216; *a Spreng.* i. 56. *Willd. enum.* i. 42. *Link. enum.* i. 11. *Vahl. enum.* i. 268. *Schult. obs.* 10. *Hort. kew. ed. I.* 44; *ed. II.* i. 62. *Schraderia hastata. Moench. marb.* i. 378.

*Leaves* rugose, acute; back lacunose sublanuginose near the costa. *Calyx* cyathine, bilabiate, pubescent, reticulate, with 12 ribs; upper lip turbinate ascending, entire and subemarginate; lower lip extending beyond and narrower than the upper, bifid; segments oblong, cuspidate. *Corolla* reddish purple, twice as long as the calyx; upper lip vaulted bifid at the end. *Filaments* 2, each composed of 2 parts, the antheriferous portions a little above the base laterally coherent with the portions inserted into the corolla. *Vasa nutrientia* livid, extending from the antherae and the glands to the lower corollaceous portions of the filaments. *Antherae* lanceolate, unilocular. *Glands* 2, terminating the glanduliferous portions, parallelipedal, dentate at the end, shorter than the antherae. *Style* filiform. *Stigmata* 2, attenuate, subrecurvate. *Vasa deferentia* 2, beginning at the points of the stigmata.

9. *SALVIA glutinosa*. Calycis labium superius integrum acutum apiceque subtrifidum. Folia cordato-sagittata.—Upper lip of the calyx entire and subtrifid at the end. Leaves cordato-sagittate. *Obs.* 12097. Specimen gathered by Dr. Johnson in Switzerland.—*Obs.* 9311. In a garden.—*Bot. mat. med.* i. 46. *Linn. mant.* 319; *a Willd.* i. 143; *a Roem. and Schult.* i. 235; *a Spreng.* i. 63. *Vahl. enum.* i. 262. *Lam. & Dec.* iii. 509; *syn.* 218. *Moench. marb.* i. 373. *Willd. enum.* i. 42. *Link. enum.* i. 12. *Schrad. germ.* i. 66. *Bieb.* i. 22. *Wahl. carp.* 10; *helv.* 7. *Roth. enum.* i.

80; *germ.* i. 12; ii. *pars* i. 33. *Henck.* i. 161. *Gou. hort.* 19; *monsp.* 62. *Jacq. vind.* 5. *Hort. kew. ed.* II. i. 61. *Seb. & Maur.* 10.

*Sclarea glutinosa.* *Mill. Ph. dict. n.* 11.

*S. Linn. ups.* 11. n. 6. *Kram.* 9. n. 5. *Roy.* 308. n. 4.

*Hall. hist.* i. 111. n. 252.

*Horminum flore luteo.* *Rupp. ab. Hall.* 222.

*Colus jovis.* *Lob. obs.* 301, *repr. in Ger. by Johns.* 769.

*Leaves* acuminate and acute, serrate, sagittate cordate and sometimes one half cordate with the other half sagittate; the margin of the acuminate part mostly entire. *Racemus* verticillate, villose; hairs globiferous. *Calyx* with 15 and 12 ribs; upper lip triangular; lower lip bifid; segments triangular. *Filaments* uniuervose; descending branches shorter than the antherae, semiorbicular at the end; glanduliferous at the terminal margin; glands linear, coherent end to end, reticulate, when pressed between glasses throwing out pollen. *Pollen* globose. *Rib* of each branch terminating short of the gland. *Antherae* laterally coherent, linear. *Capsules* obovate, compressed, fuscous, not becoming glutinous in water. *Obs.* 12097.—*Calyx* bilabiate; upper lip semiovate, trinervose, obsoletely tridentate at the end; teeth minute, indiscernible without a microscope and removing the hairs, sometimes 3, short, setaceous, sometimes merely 3 points; hairs globiferous at the end; lower lip bifido-bipartite; segments triangular. *Antherae* 2, linear, parallel, slightly coherent, unilocular. *Obs.* 9311.

## 2. Upper lip of the calyx tridentate.

10. *SALVIA disermas.* *Calycislabium superius tridentatum, dentibus conniventibus. Folia oblonga cordato-oblonga lanceolataque, duplicato-crenata rugosa villosa. Petioli marginati. Caulis hirsutus, pilis globiferis.*—Upper lip of the calyx tridentate; teeth connivent. Leaves oblong cordato-oblong and lanceolate, doubly crenate rugose villose. Petioles bordered. Stem hirsute; hairs globiferous. *Obs.* 10335. In Darley garden. 16 May.—*Obs.* 5292. Specimen gathered in Vienna garden.—*Linn. sp.* i. 36; ii. 1676; *mant.* 318; *a Murr.* 70; *a Willd.* i. 139; *a Roem. & Schult.* i.

246. *Vahl. enum.* i. 266. *Willd. enum.* i. 39. *Sibth. prodr.* i. 16. *Hort. kew. ed. I.* i. 42; *ed. II.* i. 59. *Link. enum.* i. 15. (The references to *Ard.* will probably prove to be *S. tingitana*.)

*Horminum disermas.* *Moench. marb.* i. 140.

Villose, glutinous; hairs glabiferous, transparent. *Stem* erect, somewhat more than 16 inches long, herbaceous. *Leaves* subattenuate. *Racemus* verticillate, 8 inches long. *Verticilli* sexflorous, distant. *Bractees* cordato-ovate, acuminate, shorter than the calyces. *Calyx* compressd above, that of the fruit nearly  $\frac{1}{2}$  inch long; ribs 13; upper lip obovate, triearinate; teeth equal, triangular, spinescent; sinuses rounded. *Corolla* just longer than the calyx; upper lip slightly vaulted, emarginate, fleshcoloured, pubescent at the end; lower lip trifid; intermediate segment broader, emarginate, purplish pink. *Filaments* curvd. *Antherae* oblong, unilocular. *Pollen* yellow, oval, when moistend globose. *Stigmata* 2, attenuate, revolute, the lower larger. *Vasa deferentia* 2, begining just below the ends of the stigmata. *Obs.* 10835.

11. *SALVIA sylvestris.* Calycis labium superius tridentatum, dentibus conniventibus, pilis acutis. Folia lanceolata crenata serrataque.—Upper lip of the calyx tridentate; teeth connivent; hairs acute. Leaves lanceolate, crenate and serrate. *Obs.* 5298. Specimen gathered in Vienna garden.—*Obs.* 12235. Specimen from Dr. Heise under the name of *S. nemorosa*.—*Obs.* 5267. Specimen from Baron Jacquin.—*Obs.* 5268. Specimen gathered in Lichfield garden.—*Linn. sp.* i. 34; *a Murr.* 69; *a Willd.* i. 133; *a Roem. & Schult.* i. 249; *a Spreng.* i. 67; *iv. pars* ii. 17; *hal.* 11. *Willd. enum.* i. 35. *Vahl. enum.* i. 266. *Lam. & Dec.* iii. 508; *syn.* 218. *Horn.* i. 31. *Link. enum.* i. 13. *Sibth. prodr.* i. 15. *Hort. kew. ed. I.* i. 39; *ed. II.* i. 56. *Wallr. ann.* 5. *Roth. enum.* i. 74; *germ.* i. 11; *ii. pars* i. 29. *Scop. carn.* i. 27. *Schrad. germ.* i. 61. *Host. fl.* i. 23; *syn.* 16. *Wahl. carp.* 9. *Honck.* i. 152. *Krock.* i. 40. *Jacq. vind.* 5; *aust.* iii. 7. t. 212.

*S. nemorosa.* *Linn. sp.* i. 35; *a Willd.* i. 134; *a Roem. & Schult.* i. 251. *Vahl. enum.* i. 267. *Horn.*

i. 32. *Schult. obs.* 8. *Bieb.* i. 20; iii. 22. *Link. enum.* i. 13. *Hort. kew. ed. I.* i. 40; *ed. II.* i. 56. *Roth. enum.* i. 75; *germ.* i. 11; ii. *pars* i. 30. *Honck.* i. 153. *Spreng. hal.* 12.

*Scalaria punctata.* *Moench. carb.* i. 374.

*Hormini silvestris* III altera species. *Clus. paun.* 583, *repr. in*

*Hormini silvestris* V altera species. *Clus. hist.* ii. 31, *Orvala altera.* *Dod.* 290, *and*

*Gallitrichum alterum.* *Ger. by Johns.* 768, *and cop. in*

*Horminum sylvestre.* *Matth. a C. B.* 366,

*Verbascum nigrum salvifolium.* *Dalech.* ii. 1299, *and* *Horminum sylvestre salvifolium.* *Park. theatr.* 57, *and imit. in*

*Gallitrichum glabrum, folio salviae, flore purpureo.* *Bauh. J.* iii. *pars* ii. 312.

*Horminum sylvestre.* *Matth.* 888.

*Stem* villose. *Leaves* lanceolate and ovato-lanceolate, acute and acuminate, sometimes doubly serrate, rugose, pubescent. *Racemi* continuous and interrupted. *Bractea*e ovate, acuminate, often purple, as long as and longer than the flowers; acumen setaceous. *Calyx* scabrous and hirsute, with olearia; upper lip ascending; obovate, intermediate tooth shorter, behind the others; lower lip bipartite,  $1\frac{1}{2}$  and twice as long as the upper; segments ensate. *Corolla*  $1\frac{1}{2}$  as long as the calyx, 4 and 5 tenths long, blue, with yellow olearia; upper lip pubescent; lower lip trilobate; intermediate lobe reniform; lateral lobes oblong. *Antherae* coherent and distinct. *Obs.* 5298. 12235. 5268.

12. *SALVIA pratensis.* Calycis labium superius tridentatum, dentibus conniventibus. Folia cordato-oblonga oblonga lanceolataque, duplicato-crenata. Corollae labium superius labio inferiori longius.—Upper lip of the calyx tridentate, with connivent teeth. Leaves cordato-oblong oblong & lanceolate, duplicato-crenate. Upper lip of the corolla longer than the lower. *Obs.* 12229. Specimen gathered by Dr. Johnson in Switzerland.—*Obs.* 12230. Specimen gathered by Davies on the Road ee under the walls of Chester, probably on red sandstone.—*Bot. mat. med.* i. 48. *Linn. a Willd.* i. 135;

*a* Roem. & Schult. i. 244; *a* Spreng. 66; *hal.* 11. Wallr. ann. 4. Sut. i. 16. Hagenb. i. 19. Vahl. enum. i. 263. Scop. carn. i. 30. Schrad. germ. i. 63. Host. fl. i. 27; syn. 17. Kunth. ber. 10. Honck. i. 155. Lam. & Dec. iii. 508; syn. 218. Willd. ber. 17; enum. i. 36. Roth. enum. i. 77; germ. i. 12; ii. pars i. 30. Poll. i. 25. Gmel. C. bad. i. 55. Wahl. carp. 9; helv. 7. Asso 3. Krock. i. 39. Bluff & Fing. i. 35. Schlecht. ber. i. 16. Jacq. vind. 5. Smith. engl. i. 34; in cycl. xxxi. Roth. & Schm. 14. Brandt i. 8. On clay. Gort. foed. 8. Huds. 10. Sibth. ox. 8. Abb. 6. Bot. arr. ed. IV. ii. 20. Found by Mr. Swayne at Wick-cliffs in Gloucestershire.

*S. Linn. ups.* 10. n. 1.\* *Hall. hist.* i. 111. n. 253.

*Stem* hirsute. *Leaves* acute and obtuse, nearly glabrous on the face, hirsutulous on the back. *Petioles* villose. *Racemi* to 10 inches long, villose. *Bracteae* ovato-triangular acuminate, the lower longer than the calyces. *Calyx* hirsute; hairs acute and globiferous; upper lip obovate; lower lip as long as the upper; segments oblong, acute. *Corolla* nearly thrice as long as the calyx. *Appendages* of the antherae coherent, falcate, unidentate, glandular at the end. *Pistil* longer than the corolla.

13. *SALVIA paniculata*. Calycis labium superius tridentatum, dentibus conniventibus. Folia cuneato-elliptica obovataque, serrata.—Upper lip of the calyx tridentate; teeth connivent. Leaves cuneato-elliptic and obovate, serrate. *Obs.* 9509. In Highfield garden. 16 Aug.—*Obs.* 9510. Specimen from Baron Jacquiu.—*Obs.* 5288. Specimen gathered in Upton garden.—*Linn. mant.* 25. 511; *a* Murr. 71; *a* Willd. i. 145; *a* Roem. & Schult. i. 237; *a* Spreng. i. 64. Vahl. enum. i. 229. Willd. enum. i. 42. Link. enum. i. 13. Hart. kew. ed. I. i. 45; ed. II. i. 63.

*S. chamelacagnea*. Berg. cap. 3.

*Leaves* to an inch long. *Bracteae* obovate, cuspidate. *Calyx* hirsute, reticulate, with yellow globular olearia; hairs acute; upper lip obovate, ascending, inflexed at the margins; lower lip semibifid; segments triangular. *Corolla* blue, with olearia.

14. *SALVIA laciniata*. Calycis labium superius tridentatum, dentibus conniventibus, pilis glanduliferis. Folia pinnatifida rugosa subtus villosa. Corolla calyce duplo longior.—Upper lip of the calyx tridentate; teeth connivent. Leaves pinnatifid rugose villose underneath. Corolla twice as long as the calyx. *Obs.* 5272. Specimen gathered in Vienna garden.—*Willd. suppl.* 2.

Hirsute, oleariferous. *Olearia* orangecoloured. *Hairs* acute and globiferous; globiferous hairs somewhat shorter. *Leaves* nearly glabrous on the upper surface; the lower cordate at the base, almost bipinnatifid. *Petioles* villose. *Bracteae* ovate, acute. *Calyx* with 14 ribs, with numerous orangecoloured olearia, 4 tenths of an inch long; upper lip obovate, ascending; terminal tooth behind the lateral teeth; lower lip bipartite, a tenth of an inch longer; segments triangular-ensate, submucronate. *Corolla* 7 tenths of an inch long, with olearia as in *S. Aethiopis*; limb reticulate with bullate areolae.

15. *SALVIA nubia*. Calycis labium superius tridentatum. Folia ovato-elliptica, basi hastato-cordata, crenata, rugosa.—Upper lip of the calyx tridentate. Leaves ovato-elliptic, hastato-cordate at the base, crenate rugose. *Obs.* 5281. Specimen from Dr. Heise, just come into flower, under the name of *S. abyssinica*.—*Linn. a Murr.* 70; *a Willd.* i. 139; *a Roem. & Schult.* i. 249; *a Spreng.* i. 66. *Hort. kew. ed. I.* i. 42; *ed. II.* i. 59. *Murr. in commentat. gott. pro 1778, t. 3.* *Vahl. enum.* i. 259, but upper teeth of the calyx described as lanceolate.

*S. abyssinica.* *Linn. fl. suppl.* 88, but bracteae described as entire at the margin and leaves.

Pubescent. *Leaves*, the lower obtuse, those at the base of the first branches acute; floral leaves ovate, acuminate, crenate. *Bracteae* ovate, acuminate, the 2 lowermost crenate. *Calyx* hirsute, 3 tenths of an inch long, with orange olearia; upper lip obovate, ascending; lateral margins inflex; lower lip bifid, straight, somewhat longer; segments ensate. *Corolla* projecting beyond the calyx but measuring the same; upper lip oblong, emarginate, pubescent; lower lip

somewhat shorter. *Stamina* distinct, even with the upper lip. *Appendages of the antherae* falcate, dentate, glandular at the end.

16. *SALVIA nilotica*. Calycis labium superius truncatum tridentatum, dentibus rectis, spinescentibus. Folia ovata denticulata hirsuta. Caulis hispidus.—Upper lip of the calyx truncate tridentate; teeth straight spinescent. Leaves ovate denticulate hirsute. Stem hispid.—*Obs.* 12237. Specimen gathered by Jonathan Rogers Stokes in Edinburgh garden. 5 Aug.—*Murr. in commentat. gott. pro 1778. t. 2; in Linn. a Murr. 70; a Willd. i. 140; a Roem. & Schult. i. 258; a Spreng. i. 68. Vahl. enum. i. 258. Link. enum. i. 18. Willd. enum. i. 39. Hort. kew. ed. II. i. 59.*

Root fibrous. Stem simple, 4 inches long. Leaves thin, sessile, acute and rather obtuse. Racemus terminal. Bracteae ovate, acute. Calyx tubular, hirsute,  $3\frac{1}{2}$  tenths long; lips straight; segments spinescent. Corolla projecting, measuring the same as the calyx; upper lip oblong, emarginate; lower lip trilobate; lateral lobes oval, cuspidate; intermediate lobe reniform. Stamina nearly equalling the corolla. Appendages of the antherae linear glandular at the end as long as the antheriferous branch.

17. *SALVIA napifolia*. Calycis labium superius tridentatum, dentibus rectis ensatis. Folia lyrata hastata hastato-cordata ovataque, dentato-crenata.—Upper lip of the calyx tridentate; teeth straight ensate. Leaves lyrate hastate hastato-cordate and ovate, dentato-crenate. *Obs.* 5285. Specimen gathered in Vienna garden.—*Obs.* 8131. In Darley garden.—*Jacq. hort. t. 152; ap. Linn. a Murr. 70; a Willd. i. 143; a Roem. & Schult. i. 259. Hort. kew. ed. I. i. 44; ed. II. i. 61. Willd. suppl. 3. Sibth. prodr. i. 17. Schult. obs. 10. Link. enum. i. 13. Vahl. enum. i. 261. S. verticillata  $\beta$  Lam. & Dec. iii. 511. Linn. a Spreng. i. 66.*

Leaves rugose, the lower obtuse, the upper acute; terminal segment of the lower leaves oblongo-hastate. Bracteae shorter than and as long as the calyces. Calyx, lower lip bifid; segments ensate. Corolla



purplish blue, somewhat longer than the calyx ; upper lip straight, emarginate ; lower lip longer, tripartite ; lateral segments cuspidate ; middlemost segment obreniform, subdentate, with an acute cuspis in the sinus. *Obs.* 8131.—Pubescence thicker than in the preceding specimen. *Leaves* oblongo-ovate. *Panicle* compact. *Obs.* 5285. Similar to *S. verticillata* in foliage, dissimilar in florescence.

*Nat.* of Bithynia Romelia Italy and France.

18. *SALVIA Sclarea*. Calycis labium superius tridentatum. Folia cordata crenata rugosa. Bractee acuminatae mucronatae.—Upper lip of the calyx tridentate. Leaves cordate crenate rugose. Bractee acuminate, mucronate. *Obs.* 9669. Specimen from Baron Jacquin.—*Obs.* 9729. From Wilsons nursery.—*Bot. mat. med.* i. 51. *Linn. a Murr.* 71 ; *a Willd.* i. 147 ; *a Roem. & Schult.* i. 252 ; *a Spreng.* i. 68. *Vahl. enum.* i. 276. *Sibth. prodr.* i. 17. *Schrad. germ.* i. 67. 417. *Willd. enum.* i. 43. *Schult. obs.* 10. *Bieb.* i. 22. *Seb. & Maur.* 9. *Honck.* i. 162. *Lam. and Dec.* iii. 508 ; *syn.* 218. *Gou. monsp.* 62. *Thuill.* 24. *Bluff and Fing.* i. 36. *Link. enum.* i. 15. *Sut.* i. 17. *Hort. kew. ed. II.* i. 63. (*Jacq. vind.* 6, is described as having lanate calyces.)

*Sclarea vulgaris.* *Moench. marb.* i. 374.

*S. Linn. ups.* 10. n. 4. *Ger. Lud.* 259. n. 6.

*Sclarea.* *Lob. ic.* 556, *repr. from obs.* 500, and *repr. in*

*Horminum sylvestre* I. *Clus. hist.* ii. 28.

*Leaves* duplicato-crenate. *Filaments* 2, articulated inserted into the lower lip ; lower internodia linear, flat, dilated at each end ; upper internodia curvd, inserted above their base by their sides into the sides of the lower internodium as if by a pivot ; the ascending part attenuate, the descending part flat, dolabriform, as long as the lower internodia, glandular at the end ; the glandular part resembling the anthera seems to be the rudiment of an anthera, and adheres to the correspondent part of the other filament. *Antherae* linear, unilocular, bivalve. *Pollen* yellow. *Obs.* 9729.—*Calyx* of the fruit 6 tenths of an inch long ; segments

spinescent; lips ascending, the upper truncate; middlemost spine shorter. *Capsules* obovate, convex on the back, angular on the face, rather obtuse at each end, fusco-fulvous,  $1\frac{1}{4}$  tenth of an inch long, nervose, when steeped somewhat glutinous. *Tunic* coriaceous, semitransparent, tawny white, microscopically reticulate and tuberculate. *Indusium* fulvous, reticulate. *Coraculum* subrotundo-reniform, with slight angles at the base of the rostellum, minutely comprest, granular. *Cotyledons* 2, subrotundo-reniform. *Rostellum* ovate, very short, barely projecting. *Obs.* 9669.

19. *SALVIA virgata*. Calycis labium superius tridentatum, dentibus conniventibus; labium inferius margine nervato. Folia oblonga cordataque, crenata. Caulis calycumque pili globiferi.—Upper lip of the calyx tridentate; teeth connivent; lower lip with a nervate margin. Leaves oblong and cordate, crenate. Hairs of the stem and calyces globiferous. *Obs.* 5290. Specimen from Baron Jacquin.—*Obs.* 12234. Specimen from Dr. Heise.—*Obs.* 12231. Specimen gathered in Clifton garden.—*Jacq. ap. Linn. a Murr.* 70; *a Willd.* i. 133; *a Roem. & Schult.* i. 249; *a Spreng.* i. 67. *Hurt. kew. ed. I.* i. 39; *ed. II.* i. 55. *Vahl. enum.* i. 264. *Willd. enum.* i. 35. *Link. enum.* i. 15. *Sclarea virgata.* *Moench. marb.* i. 376.

*Floral leaves* crenate, obtuse, amplexicaul. *Bracteae* acuminate, the lowermost longer than the calyx, those above shorter than the calyx. *Calyx* hirsute,  $3\frac{1}{2}$  tenths long; hairs globiferous and acute; olearia globose sessile orangecoloured; ribs connected by transverse veins, those descending from the margins of the segments of the lower lip uniting at the commissures of the lips; lower lip bipartite; segments triangular, acute. *Corolla*  $\frac{1}{2}$  inch long, with olearia; lateral segments oblong. *Style* pubescentulous. *Obs.* 5290.—*Leaves*, the lower oblong, doubly crenate, the upper ovate acute crenate. *Obs.* 12234.—*Leaf* ensatocordate, doubly crenate; face nearly glabrous. *Bracteae* cordate acuminate, subaristate. *Calyx* hirsute; hairs globiferous and acute; olearia fulvous. *Corolla*

$\frac{1}{2}$  inch long, with olearia; lateral segments oblong. *Style* pubescentulous. *Obs.* 12231.

20. *SALVIA viscosa*. Calycis labium superius tridentatum, emarginatumque, dentibus conniventibus; labium inferius margine foliaceo. Folia cordato-oblonga, crenulata crenataque. Caulis calycumque pili globiferi. —Upper lip of the calyx tridentate and emarginate; teeth connivent; lower lip with a foliaceous margin. Leaves cordato-oblong, crenulate and crenate. Hairs of the stem and calyces globiferous. *Obs.* 5292. Specimen from M. Geltibrand probably gathered in Vienna garden.—*Obs.* 5297. Specimen gathered in Vienna garden.—*Obs.* 7570. In Darley garden. 30 Sept.—*Jacq. ic. i. t. 5*; *ap. Linn. a Murr.* 69; *a Willd.* i. 134; *a Roem. & Schult.* i. 245; *a Spreng.* 66. *Vahl. enum.* i. 264. *Willd. enum.* i. 36. *Schult. obs.* 8. *Link. enum.* i. 15. *Seb. & Maur.* 8. *Hort. kew. ed. I.* i. 41; *ed. II.* i. 56.

*Stem* tetragonous, the upper part with globiferous and acute hairs; angles rounded; sides canaliculate. *Leaves*, the upper acute, ovato-oblong. *Bractee* subrotund, acuminate; hairs globiferous. *Flowering branches* long, rodlike. *Flowers* 6 in a whirl. *Calyx* cyathine, villose, with yellow olearia,  $3\frac{1}{2}$  tenths long; upper lip, segments very short, acute; lower lip bipartite; segments triangular, acuminate, with a short spine at the end; sinuses at the commissures obtuse. *Corolla* purplish pink,  $1\frac{1}{2}$  as long as the calyx, with yellow olearia. *Obs.* 7570.—*Leaves*, the upper in some specimens cordato-ovate, in others lanceolato-cordate, doubly and obtusely crenate. *Calyx* with yellowish olearia, hirsute; hairs mostly globiferous; middlemost tooth of the upper lip shorter. *Corolla* twice as long as the calyx, with yellow olearia. *Obs.* 5292. 5297.

21. *SALVIA officinalis*. Calycis labium superius tridentatum subtrifidumque. Folia crenulata rugosa, elliptica oblonga lanceolataque. Caulis subfruticosus. —Upper lip of the calyx tridentate and subtrifid. Leaves crenulate rugose, elliptic oblong lanceolate and lineari-lanceolate. Stem suffruticose. *Obs.* 7945.

*α elliptica*. Leaves elliptic oblong ovato-elliptic and lanceolate. *Obs.* 7945.

*S. officinalis*. *Bot. mat. med.* i. 53. *Linn. a Willd.* i. 129; *a Roem. & Schult.* i. 238; *a Spreng.* i. 64. *Vahl. enum.* i. 223. *Lam. & Dec.* iii. 507; *syn.* 218. *Asso* 3. *Sibth. prodr.* i. 13. *Willd. enum.* i. 34. *Schrad. germ.* i. 60. *Host. fl.* i. 23; *syn.* 15. *Moench. marb.* i. 372. *Honck.* i. 149. *Seb. & Maur.* 10. *Hort. kew. ed. II.* i. 53. *Gou. hort.* 17; *monsp.* 62. *Smith in cycl.* xxxi.

*S. Ger. Lud.* 257. On the borders of fields and vineyards.

*S. latifolia*. *Raii hist.* i. 509.

*S. major*. *Lob. obs.* 299, *repr. in Ger. by Johns.* 764.

*Magn. monsp.* 228. *Ger. J.* 623.

*S. scabrior*. *Stap.* 572.

*Leaves* often subcordate at the base. *Bracteae* ovate, the lower as long as the upper shorter than the pedicillated calyx. *Calyx* angular, scabrous, 7 tenths long, with olearia, that of the fruit rigid, with 15 ribs; interstices with lateral horizontal veins; upper lip subsessant; teeth triangular; lateral teeth twice as long as the intermediate tooth; lower lip bifid; segments ovato-ensate. *Capsules* not opening, monospermous, ovali-globose, just perceptibly compressed, atrous, somewhat more than a tenth of an inch long, subtuberculate, not glutinous when steeped, coriaceous. *Tunic* twice as thick as the capsule, ligneo-coriaceous, broken difficultly, not to be crushed between glasses, whitish, reticulate on the outer surface, indistinctly tuberculate on the inner surface; areolae orbicular; a transverse fracture not visibly columnar. *Indusium* reticulate, fulvous, semitransparent; areolae polygonal. *Corculum* dried up.

*Nat.* of Greece Italy Spain and the south of France.

*β linearis*. Leaves lineari-lanceolate. *Obs.* 5282.

*S. digyna*. *Bot. mat. med.* i. 58.

*S. cretica*. *Linn. a Willd.* i. 128; *a Roem. & Schult.* i. 236; *a Spreng.* i. 63. *Link. enum.* i. 13. *Hort. kew. ed. II.* 53. *Smith in cycl.* xxxi. *Willd. suppl.*

2. *Juss.* 112: Seeds abortiv.

*S. perangustis sinuatis foliis.* *Pluk. alm.* 329 ; *phyt. t.* 57. *f.* 1, without fructifications.

*Branches* strict. *Calyx* tripartite, similar in texture to that of *a* ; segments lineari-lanceolate ; the upper trifid ; segments ensate ; intermediate segment longest. *Corolla* with 16 ribs ; upper lip oblong, semibifid ; segments oblong. *Styles* 2. *Stigma* 1. *Vas deferens* beginning at the end of the stigma.

✓ *lanceolata.* Leaves lanceolate. *Obs.* 5264.

*S. lavandulifolia.* *Bot. mat. med.* i. 55 *a* *Linn. a Roem. & Schult.* i. 237.

♂ *oblonga.* Leaves lanceolate and oblong. Upper lip of the calyx subtrifid. *Obs.* 5264.

*S. lavandulifolia.* *Bot. mat. med.* i. 55 *β*

*S. minor.* *Cam. epit.* 476, *cop. in*

*S. minor pinuata.* *Park. theatr.* 50.

*Stems* ascending, suffruticose. *Leaves* acute and obtuse on the same stem. *Calyx* sublabiate, nervose ; ribs 15 ; upper lip trifid, straight ; segments ensato-triangular, acuminate, equal ; lower lip somewhat shorter ; segments ensato-triangular, acuminate. *Corolla* purplish blue, more than twice as long as the calyx ; upper lip erect, emarginate, comprest, villose on the outside ; hairs intermixt with whitish globose olearia. *Stamina* 2, inserted into the base of the lower lip. *Filaments* slightly incurvate. *Antherae* divided into 2 parts, each part pedicellate, unilocular, purple, linear, the upper halves longer, the lower halves coherent. *Pollen* white, adhering to a linear yellowish receptacle. The texture of the leaves so similar as to induce a belief that the parts of fructification are the seat of variation. 21 Sept.

• *crispa.* Leaves curld at the margin. *Obs.* 12098. A leaf in an old herbal.

*S. grandiflora.* *Linn. sp. a Willd.* i. 130 ; *a Roem. & Schult.* i. 223 ; *a Spreng.* i. 65. *Vahl. enum.* i. 223. *Willd. enum.* i. 34. *Moench. marb.* i. 373. *Link. enum.* i. 12. *Bieb.* i. 19 ; iii. 22. *Hort. kew. ed. II.* i. 54.

*S. serrata crispa.* *Bauh. J.* iii. *pars* ii. 305. Gathered by Cargill in Lobels garden in London.—*Rati hist.* i. 310.

- S. maxima* sive *latifolia*. *Park. theatr.* 49. No fig.  
 ‡ *trifolia*. Leaves ternate and trilobate. *Obs.* 7947.  
*S. officinalis absinthites*. *Bot. mat. med.* i. 55.

22. *SALVIA Horminum*. Calycis labium superius tridentatum emarginatumque. Folia bracteaeque oblongae ovataeque. Flores verticillati.—Upper lip of the calyx tridentate, emarginate. Leaves and bracteae oblong and ovate. Flowers verticillate. *Obs.* 6053. In a garden.—*Bot. mat. med.* i. 47. *Linn. a Willd.* i. 182; *a Roem. & Schult.* i. 254; *a Spreng.* i. 67. *Vahl. enum.* i. 254. *Lam. & Dec.* iii. 510; *syn.* 218. *Bieb.* i. 19. *Honck.* i. 150. *Hort. kew. ed. II.* i. 55. *Sibth. prodr.* i. 14. *Gou. hort.* 18. *Pollin.* i. 31.

*S. All. nic.* 37.

*Horminum coloratum*. *Moench. marb.* i. 376.

*Horminum*. *Lob. obs.* 300, *repr. in ic.* i. 555.

*Calyx* in fr. hirsute,  $4\frac{1}{2}$  tenths long; lower lip bipartite; segments triangular; hairs acute and globiferous. *Capsules* 4, oval, rufous, levigate; back convex; face with a ridge.

*Nat. of Greece* Crimea Nice and Piedmont.

23. *SALVIA aurea*. Calycis companulati labium superius tridentatum, dentibus obtusis, labio inferiore bifido rotundato. Folia caulina integerrima tomentosa, surculorum dentata.—Upper lip of the calyx tridentate; teeth obtuse; lower lip bifid rounded. Cauline leaves entire at the margin, tomentose, those of the shoots dentate. *Obs.* 3510. Specimens gathered in Upton garden.—*Linn. sp.* i. 38; *mant.* 319; *a Murr.* 71; *a Willd.* i. 145; *a Roem. & Schult.* i. 217; *a Spreng.* i. 56. *Vahl. enum.* i. 231. 362. *Willd. enum.* i. 42. *Link. enum.* i. 11. *Moench. marb.* i. 373. *Hort. kew. ed. I.* i. 45; *ed. II.* i. 62. *Bot. mag. t.* 182. *Smith in cycl.* xxxi.

*S. Commel. hort.* ii. 183. *t.* 92. *Boerh.* i. 167. *n.* 15.

*Flowering branches* tomentose, hoary. *Shoots* villose, green. *Leaves* of the flowering branches obovate oblong, entire at the margin, to  $1\frac{1}{2}$  inch long; those of the lower part of the shoots oval and elliptic crenate rugose, hoary and green; those of the upper part of

the shoots green oval crenate and angular, truncate and cuneate at the base, to  $2\frac{1}{2}$  inches long. *Calyx* cyathino-campanulate, to 6 tenths long; lobes and crenations rounded; intermediate crenation smaller. *Corolla*  $1\frac{1}{2}$  inch long; upper lip  $1\frac{1}{2}$  as long as the lower. *Appendages of the antherae* spatulate, subglandular at the end. *Pistil* projecting.

24. *SALVIA indica*. Calycis labium superius tridentatum, sinus lateralibus obtusissimis. Folia ensato-cordata, duplicato-crenata. Verticilli inferiores remoti.—Upper lip of the calyx tridentate; lateral sinuses very obtuse. Leaves ensato-cordate, dentate. Lower verticilli remote. *Obs.* 8180. In Darley garden.—*Linn. sp.* i. 37; *mant.* 318, where at l. 7 for lateralibus read lateribus; *a Willd.* i. 136; *a Reich.* i. 65; *a Murr.* 69; *a Gmel.* ii. 46, in all which in the specific character for lateralibus read lateribus; *a Roem. & Schult.* i. 241; *a Spreng.* i. 65. *Willd. enum.* i. 37. *Vahl. enum.* i. 262. 362. *Link. enum.* i. 14. *Hort. kew. ed. I.* i. 41; *ed. II.* i. 57. *Schult. obs.* 8. *Jacq. hort. t.* 78. *Smith in cycl.* xxxi. *Bot. mag. t.* 395, leaf uncoloured. *Scalaria indica.* *Boerh.* i. 164.

*Root* perennial. *Stem* 6 feet long, erect. *Leaves* petiolate; the uppermost sessile. *Racemi* verticillate, to 20 inches long, flexuose. *Bractee* cordate, acute. *Calyx* turbinate, compressed, several times shorter than the internodia; teeth of the upper lip short acute, the middlemost smaller; lower lip bipartite; segments triangular, acute. *Corolla* nearly thrice as long as the calyx; upper lip blue, compressed, archd, bifid at the end; segments rather acute; lower lip somewhat shorter than the upper, tripartite; lateral segments oblong, purple; middlemost segment obcordate, twice as long as the lateral ones, strawcoloured spotted with purple. *Stamina* archd, as long as the upper lip of the corolla.

25. *SALVIA verticillata*. Calycis labium superius tridentatum truncatum. Folia sagittato-cordata lyrato-pinnataque, crenata. Stylus labio corollae inferiori incumbens.—Upper lip of the calyx tridentate truncate. Leaves sagittato-cordate and lyrato-pinnate, crenate.

Style incumbent on the lower lip of the corolla. *Obs.* 5284. *Bot. mat. med.* i. 52. *Linn. a Willd.* i. 142; *a Roem. & Schult.* i. 241; *a Spreng.* i. 66. *Vahl. enum.* i. 260. *Schrad. germ.* i. 65. *Wahl. carp.* 10. *Schult. obs.* 10. *Roth. enum.* i. 79; *germ.* ii. *pars* i. 32. *Willd. enum.* i. 42. *Bluff & Fing.* i. 35. *Gou. hort.* 19. *Lam. & Dec.* iii. 511; *syn.* 218. *Sut.* i. 16. *Krock.* i. 41. *Jacq. vind.* 5. *Bieb.* i. 22; iii. 24. *Hanck.* i. 159. *Hort. kew. ed. II.* i. 61. *Sibth. prodr.* i. 17. *Moench. marb.* i. 373. *Gunth. &c.* 6. *Pollin.* iii. 30.

*S. Linn. ups.* 11. *n.* 7.

*Horminum sylvestre.* *Hall. gott.* 319.

Hirsute. *Bracteae* of the lowermost verticilli as long as the flowers, those of the upper verticilli shorter than the flowers. *Calyx* hirsute, 8 tenths long; segments spinescent; upper lip subtrifid, when in fruit tridentate; lower lip bipartite; segments triangular. *Corolla* one third longer than the calyx, blue; tube with a transverse line of hairs about the middle; upper lip orbicular, emarginate and crenate; lower lip trilobate; lateral lobes transversely oblong; intermediate lobe elongate, subrotundo-obovate, bilobate. *Stamina* nearly even with the corolla, inserted below the lateral segments of the lower lip. *Filaments* with a deflex spur a little below the middle; spur oblong. *Capsules* oval, whitish brown; back convex; face with a slight ridge.

*Nat.* of Greece Crimea Hungary Italy France and Germany as far north as Hanover Saxony and Silesia.

26. *SALVIA bifida*. *Calycis* labium superius tridentatum truncatum. *Folia* ovali-elliptica, duplicato-crenata, basi auriculata. *Corollae* labium superius bifidum.—Upper lip of the calyx tridentate, truncate. Leaves ovali-elliptic, doubly crenate, auriculate at the base. Upper lip of the corolla bifid. *Obs.* 10644. In Darley garden. 10 Aug. 5 Sept.—*Forsk.*

*S. Forskohlei.* *Linn. mant.* 26; *a Willd.* i. 151; *a Roem. & Schult.* i. 259; *a Spreng.* i. 68. *Hort. kew. ed. II.* i. 65. *Bot. mag. t.* 988. *Vahl. enum.* i. 275. *Sibth. prodr.* i. 15.



Hirsute. *Leaves* trilobate, with purple spots; intermediate lobe  $3\frac{1}{2}$  inches long; lateral lobes subovate, small, sometimes only 1. *Racemus*  $1\frac{1}{2}$  foot long. *Bracteae* cordate, acuminate, shorter than the pedicles and calyces. *Calyx* tubular, hirsute, when in fr. rigid; hairs with oval heads, articulated, some acute; lips ascending; upper lip when in fl. trifid with triangular segments, when in fr. truncate, tridentate, with 3 prominent ribs on the upper side; teeth spinescent; lower lip triangular, bifid; segments ensate-triangular. *Corolla* purple,  $2\frac{1}{4}$  as long as the calyx; upper lip bilobate nearly half way down, pubescent; hairs with oblong heads; segments semiovate, laterally patulous; lower lip somewhat longer than the upper, trilobate, with white blotches anteriorly; lateral segments subovate, deflex; intermediate segment obcordate. *Stamina* inserted into the base of the lower lip of the corolla. *Filaments* triramose; glanduliferous branch with a rounded dilatation at the end, shorter than the corollaceous branch. *Antherae* unilocular.

27. SALVIA *Verbenaca*. Calycis labium superius tridentatum. Folia oblongo-cordata oblongaque, sinuato-crenata duplicato-crenataque, rugosa. Corolla calyce parum longior.—Leaves oblongo-cordate and oblong, sinuato-crenate and doubly crenate, rugose. Corolla a little longer than the calyx. *Obs.* 11926. On the side of the road from Worcester to Alcester under Rainbow hill on red clay, in fl. and fr. Nov.—*Obs.* 12228. Specimen gathered 31 Oct. by Mr. Baker near Florence, and seen throughout Italy except in mountainous districts, always in flower.—*Bot. mat. med.* i. 50. *Linn. a Spreng.* 68; *a Willd.* i. 137; *a Roem. & Schult.* i. 255. *Vahl. enum.* i. 255. *Willd. enum.* i. 38. *Huds.* 10. *Link. enum.* i. 13 *a Lightf.* i. 79; ii. 1142. *Sibth. ox.* 8; *prodr.* i. 16. *Asso* 3. *Honck.* i. 158. *Gou. monsp.* 62. *Roth. germ.* i. 12; ii. *pars* i. 32. *Lam. & Dec.* iii. 511; *syn.* 218. *Thuill.* 13. *Gort. foed.* 9. *Hook. scot.* i. 10. *Grev.* 6. *Smith. engl.* i. 35. *Link. enum.* i. 13 *a Roth. germ.* i. 12; ii. *pars* i. 32. *Seb. & Maur.* 9.

*Sclarea hispanica*. *Rupp. ab Hall.* 222. In church-yards on rubbish and near villages.

Hormini II, species tertia. *Clus. paun.* 582, repr. in Hormini silvestris IIII, quinta species. *Clus. hist.* ii. 31, from seeds from Spain.

*Stem* curvd, quadrate, pubescent; sides opposit to the commissures with a deep furrow; hairs horizontal, globiferous and acute; longer hairs acute. *Leaves* oblongo-cordate, doubly crenate, nearly glabrous on the face, pubescentulous on the back; the lower petiolate, the upper sessile. *Flowering branches* decussate, pubescent. *Racemi* verticillate. *Verticilli* with 6 flowers. *Bractae* ovate, acute, entire at the margin, opposit, deflex. *Flowers* horizontal. *Peduncles* subdecurvate, hirsute. *Calyx* hirsute, scabrous, with 13 ribs, thrice as long as the peduncle; hairs crowded, articulated, acute, some globiferous; upper lip obovate, septemnervose, with 7 prominent ridges, ascending, livid blue below, 3 tenths of an inch long; segments triangular, acute; lower lip ovate, bifid, horizontal, septemnervose, 3½ tenths of an inch long; segments ensato-triangular, aristate, connivent. *Corolla* blue, just longer than the calyx; upper lip emarginate, concave, comprest; lower lip trifid; terminal segment reniform; lateral segments oval, thrice as small. *Stamina* 2. *Filaments* biramose, one branch antheriferous, the other branch with a corollaceous purple or whitish lamina; laminae coherent. *Antherae* linear, unilocular. *Pollen* yellow, oval, when moistened ovali-globose. *Obs.* 11926.—*Capsules* oval, slightly angular on the face, fusco-atrous, costate, microscopically dotted, opaque, when steeped becoming covered with mucilage; mucilage whitish, semitransparent, full of short brown microscopic hairs, which may be scraped off the capsule, and which seem to form a velvetlike pile on its surface. *Tunic* coriaceous, semitransparent, tawny, microscopically tuberculate. *Indusium* transparent, whitish tawny and tawny, microscopically reticulate. *Corculum* white and rufous tawny, granular; granules minute. *Cotyledons* 2, subrotundo-oval, cordate at the base; angles acute, embracing the rostellum. *Rostellum*

obovate. *Perisperm* very thin on the inside of the epidermis, but apparently of small extent. *Obs.* 539.

*Nat.* of Greece Italy Spain France Franconia Hannover Holland and Britain.

♂ *oblongifolia* (Variation) Lower leaves oblong. *Obs.* 11958. Specimen gathered by Davies at Penmon priory in Anglesea, on limestone.

γ *pinnatifida* (Variation) Leaves pinnatifid. *Obs.* 11957. Specimen gathered probably in Upton garden.—*Link. enum.* i. 18 β

*S. Ger. Lud.* 258. n. 4. *var.*

*Corolla* 1½ as long as the calyx.

28. *SALVIA lyrata*. Calycis labium superius tridentatum, truncatum. Folia radicalia lyrata pinnatifida sinuataque. Corollae labium superius brevissimum. —Upper lip of the calyx tridentate, truncate. Radical leaves lyrate pinnatifid and sinuate. Upper lip of the corolla very short. *Obs.* 5289. Specimen in fr. from Dr. Heise under the title of β The account of the radical leaves and corolla from *Linn. sp.* i. 33; *mont.* 318; *a Murr.* 68; *a Willd.* i. 128; *a Roem. & Schult.* i. 257; *a Spreng.* i. 68. *Vahl. enum.* i. 257. *Michaux.* i. 14. *Willd. enum.* i. 34. *Link. enum.* i. 15. *Schult. obs.* 7. *Pursh.* i. 20. *Hort. kew. ed. I.* i. 38; *ed. II.* i. 53. *Bart. phil.* i. 15.

*Horminum virginicum.* *Linn. sp.* ii. 832. *Gou. hort.* 292.

♂ labio corollae superiori brevior, fauce patente. *Clayt. & Gron. ed. I.* 8; *ed. II.* 5.

*Melissa.* *Dill. hort.* 219. t. 175. f. 216.

*Horminum.* *Mor. & Bob.* iii. 395. s. 11. t. 13. f. 27.

*Leaves* of the stem 2, oblong, denticulato-repandose, distant from the lowest verticillus, exactly similar to those of *Ajuga reptans*. *Verticilli* distant, with six flowers. *Bracteae* oblongo-ensate, as long as the calyces. *Calyx* 4 tenths long; lips ascending; teeth spinescent.

29. *SALVIA austriaca*. Calycis labium superius tridentatum. Folia cordato-oblonga ellipticaque, sinuata pinnatifidaque, crenata. Caulis subaphyllus subspi-

*catus villosus*.—Upper lip of the calyx tridentate. Leaves cordato-oblong sinuate and pinnatifid crenate. Stem nearly leafless subspicate villose. *Obs.* 5286. Specimen from Baron Jacquin.—*Obs.* 12236. Specimen in Mrs. Stovins herbarium gathered in Hammer-smith nursery.—*Jacq. austr. t.* 112; *ap. Linn. a Murr.* 69; *a Willd.* i. 138; *a Roem. & Schult.* i. 247; *a Spreng.* i. 67. *Vahl. enum.* i. 272. *Hort. kew. ed. I.* i. 41; *ed. II.* i. 58. *Host. fl.* i. 27; *syn.* 16. *Schrad. germ.* i. 64.

*Scalaria distans.* *Moench. marb.* i. 375.

*Leaves* subglabrous. *Bracteeae* subrotundo-ovate, acute, as long as the calyces. *Racemi* villose, to 10 inches long. *Calyx* villose; longer hairs acute, shorter hairs globiferous; upper lip obovate; teeth minute, the middlemost just longer. *Corolla*, lower lip trilobate; intermediate lobe reniform. *Filaments* with an oblong appendage. *Obs.* 5286.—*Leaf* elliptic, sinuate; segments triangular, acute. *Obs.* 12236.

**30. SALVIA clandestina.** Calycis labium superius tridentatum. Folia pinnatifida rugosa subtus villosa. Corolla calyce parum longior.—Upper lip of the calyx tridentate. Leaves pinnatifid, rugose, villose underneath. Corolla somewhat longer than the calyx. *Obs.* 5273. Specimen in fr. with unexpanded flowers gathered in Vienna garden.—*Obs.* 5274. Specimen in fr. gathered in Vienna garden. The account of the corolla from *Linn. sp.* i. 36; *a Willd.* i. 138; *a Roem. & Schult.* i. 261; *a Spreng.* i. 69. *Willd. enum.* i. 39. *Vahl. enum.* i. 256. *Lam. & Dec.* v. 395. *Hort. kew. ed. I.* i. 41; *ed. II.* i. 58. *Sibth. prodr.* i. 16; (*Smith in cycl.* xxxi. is described as having an obtuse calyx without mucrones.)

*S. decidua.* *Moench. marb.* i. 375.

*Stem* hirsute; hairs twice as long as the breadth of the stem, crowded. *Calyx* hirsute, from  $2\frac{1}{4}$  to 3 tenths long; hairs as long as the breadth of the segments, some globiferous; olearia globose, tawny, distant; segments ensato-triangular, mucronate. *Obs.* 5274.—*Stem* a foot long, villose; hairs acute and globiferous. *Leaves*, segments obtusely crenate. *Calyx* 3 tenths

long, hirsute with 13 ribs ; olearia globose, tawny, distant ; hairs acute, some and many globiferous ; lower lip bipartite just longer than the lower ; segments ensato-triangular, mucronate. *Seeds* on being held in the mouth becoming covered with a transparent mucilage. *S. ceratophylloides* will probably prove a variety. *Obs.* 5273.

31. *SALVIA Aethiopis*. Calycis labium superius trifido-tridentatum. Folia sinuata pinnatifidaque lanata. Bracteae aristatae. Flores lanati.—Upper lip of the calyx trifido-tridentate. Leaves sinuate and pinnatifid, woolly. Bracteae aristate. Flowers woolly. *Obs.* 5270. The account of pinnatifid leaves from *Linn. a Willd.* i. 148. *Linn. sp.* i. 47 ; *a Murr.* 71 ; *a Roem. & Schult.* i. 253 ; *a Spreng.* i. 68. *Willd. enum.* i. 44. *Link. enum.* i. 16. *Vahl. enum.* i. 276. *Schrad. germ.* i. 68. *Lam. & Dec.* iii. 509 ; *syn.* 218. *Asso* 3. *Host. fl.* i. 28 ; *syn.* 18. *Houck.* i. 164. *Hort. kew. ed. I.* i. 46 ; *ed. II.* i. 64. *Schult. obs.* 10. *Bieb.* i. 23. *Gou. monsp.* 469 ; *ill.* 2. *Jacq. vind.* 6. *Bluff & Fing.* i. 36. *Roth. enum.* i. 82. *S. lanata.* *Bot. mat. med.* i. 52. *Sclarea lanata.* *Moench. marb.* i. 374. *S. Ger. Lud.* 259. *n.* 7. *Aethiopis.* *Lyte* 124.

*Leaves* elliptic, dentato-sinuate, crenulate. *Bracteae* ovate, recurvate and patent. *Calyx* hirsute ; segments spinescent ; teeth of the upper lip triangular. *Filaments* 2 ; lower branch dolabriform, bidentate ; terminal tooth glandular, possibly the rudiment of an anthera. *Antherae* linear.

### 3. Upper lip of the calyx trifid.

32. *SALVIA dentata*. Calycis labium superius subtrifidum, laciniis obtusis. Folia lanceolato-linear, dentata.—Upper lip of the calyx trifid ; segments obtuse. Leaves lanceolato-linear, dentate. *Obs.* 5279. Specimen gathered in Upton garden.—*Hort. kew. ed. I.* i. 37 ; *ed. II.* i. 53. *Linn. a Willd.* i. 128 ; *a Roem. & Schult.* i. 217 ; *a Spreng.* i. 57. *Vahl. enum.* i. 232. *S. angustifolia.* *Sal. R. hort.* 73.

Strong scented, roughish; hairs very short; olearia orangecoloured. *Leaves* dentate and subpinnatifid; teeth and segments horizontal. *Racemus* spicate, terminal, compact. *Calyx* reticulate above; upper lip ascending; lower lip bifid; segments subovate, subacute. *Corolla* twice as long as the calyx; upper lip emarginate; lower lip trilobate; lateral lobes semioblong; terminal lobe subrotund, emarginate. *Stamina* with 2 appendages; one falcate, glanduliferous at the end; the other the rudiment of a stamen.

4. *Calyx quinquefid.*

33. *SALVIA africana*. *Calyx quinquefidus*. *Folia ovalia ellipticaque, rugosa*.—*Calyx quinquefid*. *Leaves* oval and elliptic, rugose. *Obs.* 3511. Specimen gathered in Orford garden.—*Obs.* 12238. Specimen gathered in Upton garden.—*Linn. sp.* i. 38; *a Willd.* i. 144; *a Roem. & Schult.* i. 237; *a Spreng.* i. 64. *Vahl. enum.* i. 230. *Hort. kew. ed. I.* i. 45; *ed. II.* i. 62.

*Branches* pubescent. *Leaves* cuspidate; sessile and subsessile; face pubescent; back hoary, tomentose. *Flowers* with olearia, to an inch long. *Racemi* villose. *Calyx* cyathino-campanulate, villose, reticulate; segments triangular, acute, equal; sinuses acute.

34. *SALVIA triloba*. *Calyx quinquefidus*. *Folia triloba ternata ovaliaque, rugosa tomentosa*.—*Calyx quinquefid*. *Leaves* trilobate ternate and oval, rugose tomentose. *Obs.* 5288. Specimen gathered in Upton garden.—*Linn. fil. suppl.* 88; *a Willd.* i. 130; *a Roem. & Schult.* i. 256; *a Spreng.* i. 68. *Vahl. enum.* i. 224. *Willd. enum.* i. 34. *Link. enum.* i. 12. *Hort. kew. ed. I.* i. 38; *ed. II.* i. 54. *Sibth. prodr.* i. 14. *Smith in cycl.* xxxi. *Schult. obs.* 7. *Kunth. aequin.* ii. 82.

*S. cretica pomifera*. *Clus. hist.* i. 343, *repr. in Ger. by Johns.* 765. Raised from Cretan seeds. The separat branch with a gall from Crete.

*S. cretica non pomifera*. *Clus. hist.* i. 343, *repr. in Ger. by Johns.* 765.

*Calyx* turbinate, pubescent,  $3\frac{1}{2}$  tenths long; hairs crowded, acute and globiferous; segments triangular, 2 rather larger; ribs 13 and 14.

## 30. COLLINSONIA.

*Capsulae* clausae monospermae. *Calyx* bilabiatus. *Corolla* bilabiata, labio inferiori multifido. *Nectarium* glandulosum basi germinum.—*Capsules* not opening, monospermous. *Calyx* bilabiate. *Corolla* bilabiate; lower lip multifid. *Nectarium* glandular, at the base of the germina. *Obs.* 717. *Gaertn.* i. 317. *t.* 66. *L.*

1. *COLLINSONIA canadensis*. Folia ovata. Caulis glaber.—Leaves ovate. Stem glabrous.—*Bot. mat. med.* i. 59. *Linn. a Willd.* i. 152; *a Roem. & Schult.* i. 264; *a Spreng.* i. 69. *Vahl.enum.* i. 282. *Michaux* i. 17. *Pursh.* i. 20. *Big.* 10. *Bart. phil.* i. 15. *Hort. kew. ed. II.* i. 66.

*C. decussata*. *Moench. marb.* i. 379.

*Leaves* serrate. *Calyx* capanulate, bilabiate, quinque costate, pubescent, hirsute on the inside below the base of each lip, the hairiness descending below the lower lip; upper lip trifid, as long as the tube, reflex; segments triangular, the middlemost somewhat shorter; lower lip bipartite, somewhat longer than the upper; segments ensate, longer than the tube. *Germina* 4, roundish. *Nectarium* ovate, close to and just sensibly longer than the germina. *Capsules* roundish, 1 and 2, when 2 contiguous, the other germina being abortiv, half as long as the tube of the calyx,  $\frac{1}{4}$  of the tenth of an inch long, olivecolourd, semitransparent. *Seed* 1, roundish, smaller than the capsule. *Tunic* reticulate, semitransparent, tawny. *Indusium* semitransparent, tawny. *Corculum* obovate, slightly compressd, tawny, granular. *Obs.* 717. In a garden. 11 Sept.—*Calyx*  $1\frac{1}{4}$  tenth of an inch long, some after flowering growing to  $3\frac{1}{4}$  tenths of an inch and containing 1 unripe capsule. *Obs.* 10188. In Darley garden. 9 Oct.

♂ *cordata*. Upper leaves entire at the margin. *Pursh.* i. 20.

*C. canadensis*. *Link. enum.* i. 17.

*Floral leaves* reniform, entire at the margin. *Calyx* to  $2\frac{1}{4}$  tenths long; segments ensate, longer than the tube. *Corolla* to  $\frac{1}{4}$  inch long. *Stamina*  $1\frac{1}{4}$  as long as the corolla. *Obs.* 12242. Specimen of a panicle in

Mrs. M. Stovins herbarium gathered in Sheffield nursery. Sept.

31. AMOMUM.

*Capsula* trilocularis. *Calyx* superus trifidus. *Corolla* limbo duplici; limbo exteriori trifido, interiori bilabiato; labio superiori antherifero, inferiori trifido. —*Capsule* trilocular. *Calyx* superior trifid. *Corolla* with a double limb; outer limb trifid; inner limb bilabiate; upper lip antheriferous, lower lip trifid. *Obs.* 5254. *L.*

Zingiber. *Gaertn.* i. 33. t. 12.

Alpinia. *Gaertn.* i. 36. t. 12. *L.*

Hellenia. *Linn. & Willd.* i. 4. *Brown, Rob.* i. 307.

Swartz observes that the part into which the anthera is inserted is not a filament but a segment of the inner limb of the corolla. The shape of such a part is inadmissible as a generic character.

1. *Flowers on scapi.*

1. *AMOMUM striatum.* Scapus simplex striatus. Bractee striatae. Corollae limbi interioris labium superius lineare emarginatum, labium inferius ensato-oblongum corniculis 2 linearibus basi. Stigma pubescens.—Scapus simple striate. Bractee striate. Upper lip of the inner limb of the corolla linear emarginate; lower lip ensato-oblong with 2 linear cornicula at the base. Stigma pubescent. *Obs.* 8213.

*A. sylvestre.* *Swartz. prodr.* 11; *occid.* i. 1. *Linn. & Willd.* i. 7; *a Roem. & Schult.* i. 29; *a Spreng.* i. 12.

Zingiber sylvestre. *Bot. mat. med.* i. 67.

*Bractee* oblong, coriaceous; ribs 21. *Germen* oblongo-turbinate, substrate. *Calyx* tubular, trifid, coriaceous, multinervose, thrice as long as the germen; ends of the segments hirsutulous; ribs 21. *Corolla*, outer limb, segments oblong quinquenervose; inner limb bilabiate; lower lip trilobate, intermediate segment ensato-oblong, opaque, somewhat shorter than the outer limb; lateral lobes triangular, terminated by linear cornicula; cornicula patent; upper lip linear, of the same texture with and shorter than the lower, emarginate, unguiculate; unguis as narrow and of the



same texture with the cornicula. *Antherae* lanceolate, curvd, whitish, bivalve, unilocular, with a longitudinal receptacle. *Style* filiform. *Stigma* oblong, transverse, pubescent.

2. **AMOMUM Zingiber.** Scapus simplex. Corollae limbi interioris labium inferius tripartitum, lacinia intermedia lateralibus duplo longiore; labium superius subulatum porrectum.—Scapus undivided. Lower lip of the inner limb of the corolla tripartite; intermediate segment twice as long as the lateral segments; upper lip subulate projecting. *Obs.* 3257. In Spring grove garden.—*Linn. a Murr.* 50. *Burm. N. ind.* 1. *Willd. enum.* i. 3.

*Zingiber officinale.* *Bot. nat. med.* i. 63. *Linn. a Roem. & Schult.* i. 564; *a Spreng.* i. 12. *Rosc. in lin. tr.* viii. 348. *Roxb. in asiat. res.* xi. 345; *ind.* i. 46. *Hort. kew. ed. II.* i. 5. *Smith in cycl.* xxxix. n. 1.

*Corolla*, upper lip of the inner limb linear below, above the end of the antherae lineari-lanceolate; the projecting end as long as the antherae. *Style* filiform, whitish with the same linear minute rufous spots as the corolla.

3. **AMOMUM occidentale.** Scapus simplex. Corollae limbi interioris labium superius emarginatum, antherae longitudine; labium inferius obovatum multinervosum, denticulis 2 basi.—Scapus simple. Upper lip of the inner limb of the corolla emarginate, as long as the anthera; lower lip obovate multinervose, with 2 teeth at the base. *Obs.* 12258. Imperfect specimen of a racemus with flowers scarcely expanded, gathered by Wright in Jamaica. The account of the scapus from *Alpinia occidentalis.* *Swartz. occid.* i. 9. *Linn. a Willd.* i. 12; *a Roem. & Schult.* i. 20. 561; *a Spreng.* i. 14. *Rosc. in lin. tr.* viii. 345. *Hort. kew. ed. II.* i. 4. *Smith in cycl.* xxxix. n. 3.

*Alpinia jamaicensis.* *Gaertn.* i. 36. t. 12.

*Stigma* turbinate glabrous.

4. **AMOMUM Ensai.** Scapus simplex. Capsulae oblongae.—Scapus simple. Capsules oblong. *Obs.*

12259. Specimen in fr. from Wright, probably gathered by Roxburgh in India.—*Raesch.* 1. Ceylon.

Zingiber Ensal. *Gaertn.* i. 35. t. 12.

Cardamomi cum siliquis sive thecis longis. *Bauh. J.* ii. pars i. 204, the 3 inner figures.

*Leaves* lanceolate thin flexible. *Capsule* triquetrous, an inch long.

2. *Flowers on a stem.*

5. **AMOMUM calcaratum.** Corollae limbi interioris labium superius tripartitum, lacinia intermedia ovali emarginata, lateralibus minimis setaceis.—Upper lip of the inner limb of the corolla tripartite, intermediate segment oval emarginate; lateral segments minute setaceous. *Obs.* 12257. Specimen from Wright gathered by Roxburgh in India and named Amomum spicatum. *Alpinia calcarata. Rosc. in lin. tr. viii.* 347. *Roxb. ind.* i. 67; *in asiat. res.* xi. 355. *Linn. a Roem. & Schult.* i. 563; *a Spreng.* i. 14. *Link. enum.* i. 5. *Smith in cycl.* xxxix. n. 11.

Globba erecta. *Willd. suppl.* 1.

*Leaves* lineari-lanceolate, mucronate, denticulate, sometimes hispid with adpress hairs.

6. **AMOMUM uncinatum.** Corollae limbi interioris labium inferius trilobum; lobis lateralibus obsoletis apice ligulatis, intermedio cuneato eroso-lobato. Calyx tubiformis levigatus glaber.—Upper lip of the inner limb of the corolla trilobate; lateral lobes obsolete, ligulate at the end; intermediate lobe cuneate eroso-lobate. Calyx tubiform levigate glabrous. *Obs.* 8507. Specimen gathered by Wright in Jamaica.

*A. racemosa. Linn. a Willd.* i. 11; *a Spreng.* i. 14.

*Rosc. in lin. tr. viii.* 345. *Smith in cycl.* xxxix. n. 1.

*A. antillarum. Linn. a Roem. & Schult.* i. 20.

Zingiber uncinatum. *Bot. mat. med.* i. 73.

*Leaves* subacuminate. *Thyrus* terminal, to 5 inches long, erect and incurvato-horizontal. *Flowers* 8 tenths long. *Germen* glabrous. *Calyx* subtrifid, nervose, longer than the germen, 3 tenths long; ribs 12; segments triangular, subobtuse, with ribs parallel to the

margin. *Corolla* white; tube cylindric, twice as long as and narrower than the calyx; outer limb, segments cucullate, quadrinervose and quinquenervose; lower lip of the inner limb extended beyond the outer limb; intermediate segment trilobate and rhomboidal; intermediate lobe bifid and erose; upper lip linear, trinervose, emarginate, somewhat shorter than the lower lip. *Style* filiform, nearly as long as the corolla. *Stigma* turbinate.

7. **AMOMUM nutans.** Corollae limbi interioris labium inferius tripartitum; lacinia intermedia subtriloba, lateralibus minimis linearibus.—Upper lip of the inner limb of the corolla tripartite; intermediate segment subtrilobate; lateral segments very small linear. *Obs.* 7168. From Perryhill nursery.

*Alpinia nutans.* *Linn. a Roem. & Schult.* i. 662; *a Spreng.* i. 14. *Hort. kew. ed. II.* i. 4. *Rosc. in lin. tr.* viii. 346. *Roxb. in asiat. res.* xi. 354; *ind.* i. 64. *Globba nutans.* *Linn. mant.* 170, probably from Rumph. *a Willd.* i. 153.

*Globba silvestris major.* *Rumph.* vi. 140. *t.* 62, *in fr.*

*Leaves* lanceolate, finely attenuate at the end, tough; margin sericeo-hirsute; hairs nearly adpressed; ribs and veins patulous; face with about 10 depressed lines parallel to the costa, which on the back convex. *Petioles* amplexicaul, terminating in a stipula at the end, hirsute at the margin towards the end. *Stipulae* ovato-oblong, erect, at the base of the leaf on the inner side. *Racemus* secundose. *Peduncle* and *pedicles* hirsute; hairs crowded. *Flowers* coriaceous, aromatic of a scent similar to that of dried roses. *Bractae* solitary, one at the end of each pedicle, biflorous, coriaceous, cylindric, semitrifid, bursting on one side almost to the base, multinervose, whitish brown, tinged at the end with red; one flower sessile, the other pedicellate. *Germen* trilocular, turbinate, sericeo-hirsute with crowded hairs, somewhat shorter than the pedicle. *Calyx* tubular, unequally semitrifid, similar to and somewhat shorter than the bractae, hirsutulous below and at the end, thrice as long as the germen, bursting on one side. *Corolla* thrice as long as the calyx, infusa-

dibulate; tube cylindric, half as long again as the germen, hirsute at the mouth on the inside; segments of the outer limb inserted into the outside of the upper end of the tube, nervose, thinner towards the margin; 2 approximate incumbent, with 6 ribs; the 3rd opposit to and distinct from the other 2, oval, with 15 ribs and other shorter ribs at the base; upper lip of the inner limb one fourth longer than the outer, at the base of the 2 approximate segments of the outer limb, truncate at the end, with a raphis along the middle, rugose along the raphis towards the end with grumose granules, thinner towards the margin, nervose, 1 inch 6 tenths long, nearly 2 inches broad; ribs patent, curvd; lower lip tripartite, segments erect; lateral segments linear, attenuate, connivent, twice as short as the germen, bifid at the end; intermediate segment somewhat shorter than the outer limb, spatulate, emarginate, below linear and subcanaliculate. *Antherae* 2, contiguous, parallel, linear, unilocular, adhering to the inner side of the upper part of the middle segment of the lower lip. *Pollen* white globose scabrous. *Style* filiform, hirsutulous at the end, lying between and extending just beyond the antherae. *Stigma* turbinate, hirsutulous. *Nectarium* subturbinate, at the base of the style.

8. *AMOMUM bifidum*. Corollae limbi interioris labium superius bifidum basi utrinque denticulo rotundato.—Lower lip of the inner limb of the corolla bifid, with a rounded tooth at the base on each side. *Obs.* 12256. Specimen with unexpanded flowers from Wright, gathered by Roxburgh in India and named *Amomum Taraca*.—*Obs.* 12256. Seeds from Wright from Calcutta garden.

*Alpinia* Allughas. *Linn. a Spreng.* i. 14. *Rosc. in. lin. tr.* viii. 346 *Hort. kew. ed. 11.* i. 4. *Roxb. ind. i.* 61; *in asiat. res.* xi. 353.

*Heritiera* Allughas. *Retz. obs.* vi. 17. t. 1.

*Hellenia* Allughas. *Linn. a Willd.* i. 4. *Willd. suppl.* 1. *Taraca*. *Jones in asiat. res.* iv. 243.

. *Leaves* lanceolate, mucronate ; margin scabrous. *Flowers* oleariferous. *Calyx* vaginant, cloven on one side, multinervose, pubescent, aristate ; arista short, inserted below the end. *Corolla*, outer limb trifid ; segments oblong, archd at the end, multinervose, the upper cuspidate ; lower lip of the inner limb cuneate ; segments cuneate, bilobate and trilobate ; upper lip linear, bifid at the end ; segments acute. *Stigma* turbinate hirsute. *Arilli* membranaceous, nearly transparent, brownish white, microscopically striate ; mouth connivent ; ragged ; fibres longitudinal. *Seeds* angular, roundish and trigonous and comprest, rufescenti-fuscous,  $1\frac{1}{4}$  tenth of an inch long, microscopically striate ; back mostly angular, face generally convex. *Tunic* fuscous, composed of 2 layers ; outer layer nearly transparent, fibrous ; fibres longitudinal ; inner layer reticulate, closely adhering to the outer, rufescenti-fuscous, semitransparent ; areolae unequal, transversely oval and oblong, about the size of the granules of the parenchyma. *Hilum* ovate, acute, tawny, with a deprest line extending along the face of the seed. *Parenchyma* pale yellow, grumose, thrice as thick as the tunic, filling up the space between the tunic and indusium ; grumes unequal, transparent, angular, somewhat oval, brittle, aromatic, probably of the nature of camphor. *Indusium* slightly semitransparent, orange-rufous, somewhat thicker than the tunic, minutely reticulate, investing the perisperm and base of the corculum. *Chalaza* lenticular, horizontal, at the end of the indusium, opaque, atro-fuscous, twice as thick as the parenchyma. *Perisperm* white, fibrous, fleshy, as long as the seed, annular open at the end and at the base, investing the base of the lunulate part of the corculum and the outer sides of the vitellus, the base descending below the base of the rostellum, with a furrow on the face extending from the hilum to the chalaza ; fibres radiating inwards, curvd, resembling the texture of spermaceti, closely adhering to the indusium, transparent. *Vitellus* annular, orbiculato-spheroidal, corneo-fleshy, whitish, of the same colour with the corculum, investing the sides of the greater part of the corculum, indistinctly granular ; granules mid-

dlesized, obliterated by pressure. *Corculum* ferulate, fleshy, whitish, when steeped white, granular; rostellum? terete, truncate; body oblunulate and irregularly ovate and clavate, its form varying according to the shape of the seed as altered by compression; granules middlesized, obliterated by pressure.

## 32. LEMNA.

*Calyx* monophyllous. *Corolla* none. *Capsule* not opening, bilocular, dispermous and trispermous. *From Wolff lemma.* 27. *t. f.* 12—15.—*Calyx* monophyllous and diphyllous and none. *Corolla* none. *Capsule* unilocular. *Bot. mat. med.* iv. 336, from Michel and Smith.—*Linn. a Spreng.* i. 28. *Brown, Rob.* i. 345. *L. Lenticula.* *Dill. giss. ap.* 118. *t. at p.* 124. *A—C.*

All the species marked as annual by Hudson and Schrader but by Willdenow perhaps more accurately as perennial.

1. **LEMNA trisulca.** *Folia* radice unica, lanceolata.—Leaves with 1 root, lanceolate. *Obs.* 12008. Specimen gathered in England.—*Linn. succ.* 322; *sp.* ii. 1376; *a Willd.* iv. 193; *a Roem. & Schult.* i. 282; *a Spreng.* i. 94; *hal.* 13. *Willd. ber.* 3; *enum.* ii. 951. *Wahl. lapp.* 222; *ups.* 300; *helv.* 164; *succ.* ii. 580. *Wallr. ann.* 5. *Schrad. germ.* i. 71. *Brown, Rob.* i. 345. *Asso* 132. *Lam. & Dec.* ii. 588; *syn.* 119. *Bieb.* ii. 378. *Bluff & Fing.* i. 6. *Kunth. ber.* 10. *Host. fl.* i. 32; *syn.* 500. *Krock.* iii. 64. *Retz. scand.* 215. *Roth. enum.* i. 23; *germ.* i. 391; ii. *pars* ii. 420. *Wolff lemma* 20. *t. f.* 1—3. *Succ.* i. 13. *Poll.* ii. 552. *Huds.* 399. *Reich.* ii. 93. *Lightf.* ii. 537. 1147. *Hook. scot.* i. 10. *Bot. arr.* ii. 1019. *Sibth. ox.* 14; *prodr.* i. 11. *Smith. brit.* iii. 956; *engl.* i. 32. *Honck.* i. 23. *Pollin.* iii. 53.  
*L. Linn. lapp.* 351.  
*Lenticula trisulca.* *Scop. carn.* ii. 213. *Moench. carb.* i. 319.  
*Hydrophace.* *Hall. hist.* iii. 69. *n.* 1901.  
*Hederula aquatica.* *Lob. ic.* ii. 36, *repr. in Ger. by Johns.* 880, *cop. in*

*Ranunculus hederaceus.* *Park. theatr.* 1216 and *abr. in*

*Lenticula aquatica trisulca.* *Bauh. J.* iii. 786, the lower half. The upper half added.—*Rail syn.* 129.

*Brit. herb.* 61, *cop. from*

*Hederula aquatica.* *Ger. J.* 681.

*Leaves* petiolate, lanceolate and oblongo-lanceolate, doubly reticulate in the central parts, granular towards the sides, from 2 to 4 tenths long; larger meshes oblong.

2. *LEMNA minor.* *Folia radice unica, plana, obovato-ovalia.*—Leaves with 1 root, flat, obovato-oval. *Obs.* 6723. *Bot. mat. med.* iv. 336. *Linn. succ.* 322; *a Willd.* iv. 194; *a Roem. & Schult.* i. 283; *a Spreng.* i. 94; *hal.* 13. *Willd. ber.* 8; *enum.* i. 951. *Brown, Rob.* i. 345. *Schrad. germ.* i. 72. *Poll.* i. 552. *Krock.* iii. 65. *Host. fl.* i. 32; *syn.* 500. *Bluff & Fing.* i. 7. *Succ.* 13. *Bieb.* i. 378. *Reich.* ii. 48. *Roth. enum.* i. 89; *germ.* i. 391; ii. *pars* ii. 421. *Wolff lemna* 23. *t. f.* 4—10. *Honck.* i. 24. *Lam. & Dec.* ii. 589; *syn.* 119. *Seb. & Maur.* 321. *Asso* 132. *Lightf.* ii. 537. 1147. *Hook. scot.* i. 11. *Sibth. ox.* 14; *prodr.* i. 11. *Smith. engl.* i. 32. *Michaux.* ii. 163. *Pursh.* i. 22. *Purt.* ii. 437. *Thunb. jap.* 24. *Schlect. ber.* i. 19. *Retz. scand.* 215. *Kunth. ber.* 11. *Pollin.* iii. 54. *Wahl. carp.* 292; *ups.* 300; *succ.* ii. 579; *helv.* 164, not in the Alps.

*Lenticula minor.* *Scop. carn.* ii. 213. *Moench. marb.* i. 319.

*Hydrophace.* *Hall. hist.* iii. 69. *n.* 1900.

*Lenticula palustris, Trag.* 690, inner corner.

*Lens palustris.* *Lob. obs.* 648, *repr. in ic.* ii. 249, & *Ger. by Johns.* 829. *Dulech.* i. 1014. *Stap.* 460. *Ger. J.* 680.

*Nymphaea minor.* *Bauh. J.* iii. 773, upper fig. (The name and descr. is *Hydrocharis Morsus ranae.*)

*Leaves* doubly reticulate; meshes oval and orbicular, larger than those of *L. gibba*, from  $\frac{1}{2}$  to  $1\frac{1}{2}$  tenth long; smaller meshes appearing like granules.

*Nat. of Europe*, as far north as Sweden, North America Japan and Australia.

3. *LEMNA gibba*. Folia radice unica, hemispherica.

—Leaves with 1 root, hemispheric. *Obs.* 714. In the lower Bishops pool at Northwick near Worcester. Sept.—*Linn. succ.* 321; *sp.* i. 1377; *mant.* 494; *a Willd.* iv. 194; *a Roem. & Schult.* i. 283; *a Spreng.* i. 94; *hal.* 13. *Pursh.* i. 22. *Schrad. germ.* i. 73. *Pollin.* iii. 54. *Kunth. ber.* 11. *Lam. & Dec.* ii. 589; *syn.* 119. *Host. fl.* i. 33. *Wahl. ups.* 300; *succ.* ii. 580. *Honck.* i. 26. *Krock.* iii. 65. *Thunb. prodr.* 6. *Web. gott.* 24. *Roth. enum.* i. 89; *germ.* i. 391; ii. *pars.* ii. 421. *Willd. ber.* 3. *Bluff & Fing.* i. 7. *Succ.* i. 209. *Asso* 132. *Bot. arr.* ii. 1020. *Sibth. ox.* 15. *Smith. brit.* iii. 957; *engl.* i. 32. *Hook. scot.* i. 11. *Retz. scand.* 215. *Bieb.* iii. 610. *Wolff lemna* 26. *t. f.* 11—15.

*L. minor*  $\beta$  *Huds.* 399.

*Lenticula gibba.* *Moench. marb.* i. 319.

*Hydrophace.* *Hall. hist.* iii. 68. *n.* 1898.

*Nymphaea minor.* *Bauh. J.* iii. 773. lower fig. (The name and descr. is *Hydrocharis Morsus ranae*.)

*Leaves* oval and obovato-oval, from  $\frac{1}{4}$  to  $1\frac{1}{4}$  tenth long, doubly reticulate; meshes orbicular, the larger smaller than those of *L. minor*.

4. *LEMNA polyrrhiza*. Folia radicibus pluribus.—

Leaves with several roots. *Obs.* 12007. Specimen gathered near Worcester.—*Linn. succ.* 321; *sp.* i. 1377; *mant.* 494; *a Willd.* iv. 195; *a Roem. & Schult.* i. 283; *a Spreng.* i. 94; *hal.* 13. *Willd. ber.* 3; *enum.* ii. 951. *Schrad. germ.* i. 73. *Kunth. ber.* 11. *Bluff & Fing.* i. 7. *Lam. & Dec.* ii. 590; *syn.* 119. *Retz. scand.* 215. *Host. fl.* i. 33; *syn.* 500. *Succ.* i. 13. *Pollin.* iii. 55. *Poll.* ii. 553. *Krock.* iii. 66. *Honck.* i. 27. *Wahl. ups.* 300; *succ.* ii. 579. *Pursh.* i. 22. *Wolff lemna* 28. *t. f.* 16—21. *Schlect. ber.* i. 19. *Bieb.* iii. 610. *Lightf.* ii. 538. *Hook. scot.* i. 11. *Bot. arr.* ii. 1020. *Smith. brit.* iii. 958; *engl.* i. 33. *Reich.* ii. 93. *Huds.* 399. *Roth. enum.* i. 90; *germ.* i. 391; ii. *pars.* ii. 422.

*Lenticula polyrrhiza.* *Schreb. lips.* 114.

*Hydrophace.* *Hall. hist.* iii. 68. *n.* 1899.



*Lenticula palustris major.* *Dill. giss.* 106; *app.* 51; *ap. Raii syn.* 129. *t.* 4. *f.* 2, at *p.* 150. *Vaill. paris.* 114. *t.* 20. *f.* 2.

Green weed. *Leeuwenh. in ph. tr. abr. by Jones v. part.* ii. 225. *t.* 10. *f.* 77. 78; *by Hutt. v.* 6. *t.* 5. *f.* 6. 7.

*Leaves* irregularly orbiculari-obovate, doubly reticulate, to 3 tenths of an inch long; larger meshes oval and orbicular, sometimes pentagonal, larger than those of *L. minor*; smaller meshes similar to the larger.

### 33. SALICORNIA.

*Flores* bracteati. *Calyx* corolla que nulli. *Semen* 1, bracteae marginibus internis fere vestitum.—*Flowers* bracteate. *Calyx* and *corolla* none. *Seed* 1, embraced by the inner margins of the bractea. *Obs.* 1771. 6844. *L.* (*Guertn.* ii. 210. *t.* 127 and *Brown, Rob.* i. 410 is a distinct genus with a perispermous seed, the *Halocnemum* of *Bieb.* iii. 7.)

1. *SALICORNIA simplex.* *Folia* perfoliata. *Caulis* herbaceus, ramis indivisis.—*Leaves* perfoliate. *Stem* herbaceous; branches undivided. *Obs.* 6844. *Specimens* gathered by Dr. Cutler in New England.—*Bot. mat. med.* i. 7.

*S. mucronata.* *Big.* 2.

*S. virginica.* *Linn. a Willd.* i. 25; *a Roem. & Schult.* i. 40. *Vahl. enum.* i. 11. *Nutt.* i. 2. *Smith in cycl.* xxxi. n. 7.

*S. polystachya.* *Smith in cycl.* xxxi. n. 8?

*S. herbacea.* *Linn. sp.* i. 5 β; *a Spreng.* i. 18. *var. Michaux* i. 1. *Pursh.* i. 2.

*S. Clayt. & Gron. ed. II.* 1. *Browne, Patr.* 112?

*Stems* thickening upwards; internodia from 3 to 5 tenths long. *Spikes* pedunculate; lateral spikes opposit, shorter than the terminal spike, erect and patulous, sometimes from the lowermost leaf. *Bracteae* in threes; central bractea flabellate; lateral bracteae triangular. *Seed* naked, nearly encompassed by the elevated margin of the bractea, obovato-oval, suboompressed, rufous, pubescent, erect, with a slight furrow

on each side, nearly  $\frac{1}{4}$  of a tenth long; hairs adpressed and patulous, whitish, straight and hooked at the end; face subcultrate. *Tunic indusium* and *corculum* similar to those of *S. herbacea*.

2. *SALICORNIA herbacea*. Folia perfoliata. Caulis herbaceus, ramosus. Spicae lineari-lanceolatae.—Leaves perfoliate. Stem herbaceous, branched. Spikes lineari-lanceolate. Specimen gathered by Mr. Boraston at Teignmouth in Devonshire.—*Obs.* 1771. 6843. Specimens gathered by Dr. Cutler in New England growing with *S. simplex*.—*Bot. mat. med.* i. 6. *Linn. mant.* 315; *a Willd.* i. 23; *a Roem. & Schult.* i. 38; *a Spreng.* i. 18; *hal.* 2  $\beta$  *Vahl. enum.* i. 9. *Willd. enum.* i. 7. *Link. enum.* i. 5; *in tracts.* 40. *Host. fl.* i. 32; *syn.* 1. *Honck.* i. 1. *Scop. carn.* i. 4. *Web. gott.* 1. *Schreb. lips.* 39. *Schrad. germ.* i. 69. *Roth. enum.* i. 32; *germ.* i. 1; ii. *pars* ii. 561. *Gou. monsp.* 386. *Lam. & Dec.* iii. 396; *syn.* 197. *Gort. foed.* 1. *Guett.* ii. 422. *Woodv.* iii. 387. *Moench. marb.* i. 319. *Bieb.* i. 1; iii. 1. *Asso* 1. *Haw. succ.* 2. *Nutt.* i. 2. *Big.* 1. *Pursh.* i. 2. *Lightf.* i. 69. *Hook. scot.* i. 1. *Smith. engl.* i. 2; *in cycl.* xxxi. n. 1. *Retz. scand.* 2. *Seb. & Maur.* 1. *Krock.* i. 1. *Schum.* i. 2. *Sibth. prodr.* i. 1. *Bluff & Fing.* i. 5. *Wahl. suc.* i. 1. *S. europaea.* *Linn. suc.* 1. *Jacq. vind.* 1. *Gou. hort.* 2 *a* *S. Ger. Lud.* 328. n. 1. (*Lob. adv.* 170 and its copies are *S. fruticosa*.)

*Root* fusiform. *Stem* erect and ascending, 3 to 7 inches long, branched from the base, that of the American specimen  $3\frac{1}{2}$  inches long,  $2\frac{1}{2}$  wide. *Branches* opposit, patent. *Spikes* sessile and subsessile; terminal spikes thrice as long as the internodia; lateral spikes as long as the internodia. *Bractea*e rhombic-ovate and triangular, with an elevated margin on the inside; margin of the inner surface membranaceous, erose, broader outwards, gradually shorter inwards, at right angles with the lamina of the bractea, forming a cavity on the inner surface of the bractea. *Seed* naked, oblongo-oval, comprest, tawny, erect, nearly encompassed by the elevated internal margin of the bractea,

2 thirds of the tenth of an inch long, with a furrow on each side from above the middle to the end, deeper than in those of *S. simplex*. *Tunic* tawny, pubescent, semitransparent; hairs straight and slightly hooked, acute and with oblong heads, whitish, nearly adpressed. *Indusium* semitransparent, obsoletely striate, thicker and firmer than the tunic. *Corculum* naked, granular; granules disposed in lines; middlesized. *Cotyledons* oblong, adpressed. *Rostellum* fusiform, acute, as long as the cotyledons, adpressed.

*Nat.* of the sea coasts of Europe and North America, of the salt springs of Hungary and Germany, and of the salt lake of Onondago in the state of New York.

3. **SALICORNIA** *fruticosa*. Folia perfoliata. Caulis suffruticosus.—Leaves perfoliate. Stem suffruticose. *Obs.* 12015. Specimen in an old herbal gathered in England.—*Obs.* 12016. Specimen gathered in Pitcairns garden, both without fructifications.—*Bot. mat. med.* i. 7. *Linn. succ.* 1, under n. 1; *amoen.* vi. 54; *sp.* i. 5; *a Murr.* 5; *a Willd.* i. 24; *a Roem. & Schult.* i. 40; *a Spreng.* i. 18. *Vahl. enum.* i. 11. *Willd. enum.* i. 7. *Lam. & Dec.* iii. 397; *syn.* 198. *Link. enum.* i. 6; *in tracts* 40. *Gou. monsp.* 386. *Sibth. prodr.* i. 1. *Host. fl.* i. 32; *syn.* 1. *Thunb. prodr.* i. 1; *cap.* i. 1. *Schrad. germ.* i. 70. *Seb. & Maur.* 1. *Roth enum.* i. 87. *Haw. succ.* 1. *Smith engl.* i. 3; *in cycl.* xxxi. n. 5. *Retz. scand.* 2. *Pollin.* i. 3. *Turn. & Dillw.* i. 213. 298. 338; ii. 597. Southern coasts of England.—*Retz. scand.* 2, in the isle of Hwen.
- S. radicans.* *Smith engl.* i. 3; *in cycl.* xxxi. n. 3. *Hook. scot.* i. 1? *Haw. succ.* 1. *Bluff & Fing.* i. 6.
- S. europaea.* *Gou. hort.* 2  $\beta$  *Huds.* 1  $\gamma$
- S. glauca.* *Bot. mat. med.* i. 8. (The references to authors belong to *S. arabica*.)
- S. sempervirens.* *Sauv.* 7.
- S. Ger. Lud.* 328. n. 2. *Lob. adv.* 170, repr. in *ic.* i. 395, *Dod.* 82, & *Ger. by Johns.* 585, & *cop. in Brit. herb.* 83, and
- Kali geniculatum.* *Dalech.* ii. 1378.

*Cali geniculatum.* *Bauh. J.* iii. 704. 705, lower fig.  
n. I. II. III.

(*Kali minus.* *Bauh. J.* iii. 703, has adpressed leaves.)

*Branches* diffuse, opposit, to 8 inches long; internodia of equal thickness throughout, about  $\frac{1}{4}$  inch long. *Leaves* twice as broad as the branches; lobes acute, patent.

*Nat.* of the coasts of Europe as far north as the southern coast of England and the isle of Hwen in the Sound, and of the Cape of Good Hope.

Order 2.

DIGYNIA.

34. CORISPERMUM.

*Flowers* naked. *Seed* alate at the margin. *From* *Hall. ap. Rupp. ab Hüll.* 408. *par.* 1, and *Moench. marb.* i. 366. *Lam. & Dec.* iii. 397; *syn.* 198. *Gaertn.* i. 361. *t.* 75, *cop. in Vent. tabl.* iv. 97. *t.* 7. *f.* 3, with a flower added.—*L.*

1. *CORISPERMUM hyssopifolium.* Flores solitarii axillares.—Flowers solitary, axillary. *Obs.* 5324. Specimen from Dr. Heise.—*Linn. sp.* i. 6; *a Willd.* i. 28; *a Roem. & Schult.* i. 45. 578. *Vahl. enum.* i. 16. *Pall. ross.* 8vo. ii. 222. *Willd. enum.* i. 8. *Schult. obs.* 1. *Lam. & Dec.* iii. 397; *syn.* 198. *Gou. hort.* 3; *monsp.* 109. *Sibth. prodr.* i. 2. *Honck.* i. 12. *Hort. kew. ed. I.* i. 6; *ed. II.* i. 13. *Bieb.* i. 3. 412; iii. 4. *Stamina* 1 to 5.

*C.* *Linn. ups.* 2. *Stamina* 1 to 4.

Pubescent; hairs stellate. *Branches* alternat and nearly opposit, pubescent below, tomentose above; tomentum whitish tawny. *Leaves* lanceolato-linear, cuspidate, sparse, to  $2\frac{1}{2}$  inches long, from  $\frac{1}{2}$  to 1 tenth broad, costate, bordered; border membranaceous, whitish, twice as broad as the costa. *Stamina* 2 and 1, whitish. *Filaments* filiform. *Antherae* oval. *Germen* oval, alate at the margin and sometimes also on one side. *Styles* 2, and when a lateral ala present 3, filiform, erect. *Fruit* oval, emarginate at each end,

flat, slightly concave on one side, slightly convex on the other, alate at the margin, to  $1\frac{3}{4}$  tenth long, appearing like a coccus adhering to the branch; ala unequally dentate, membranaceous at the margin.

Order 3.

TRIGYNIA.

35. PIPER.

*Flores bracteati. Antherae 2, basi germinis. Stylus nullus. Stigmata 3 and 1. Bacca monosperma.—Flowers bracteate. Antherae 2, at the base of the germen. Style none. Stigmata 3 and 1. Berry monospermous. Obs. 9352, and from Swartz. occid. i. 52 to 74; ic. t. 4. Gaertn. ii. 67. t. 92. Linn. a Spreng. i. 28. Bot. mat. med. i. 77. L.*

1. *Leaves alternat.*

1. PIPER *aduncum*. Folia elliptica scabra basi inaequalia, alterna, venis longitudinalibus, punctis pellucidis. Spicae oppositifoliae incurvatae.—Leaves elliptic scabrous unequal at the base, alternat, with pellucid dots; veins longitudinal. Spikes opposit to the leaves, incurvate. *Obs.* 12261. 12262. Specimens gathered by Broughton and Wright in Jamaica.—*Linn. sp.* i. 41; *a Willd.* i. 162; *a Roem. & Schult.* i. 296; *a Spreng.* i. 109. *Willd. enum.* i. 46. *Haw. suec.* 4. *Hort. kew. ed. II.* i. 70. *Link. enum.* i. 36. *Swartz. obs.* 20. *Jacq. ic.* ii. t. 210. *Vahl. enum.* i. 319. *P. Browne, Patr.* 122. n. 3. *Sloane hist.* i. 185. t. 87. f. 2.

*Saururus. Plum. pl. d' amer. t.* 77.

*Leaves acuminate, veined, alternat. Peduncles twice and thrice as long as the petioles. Spikes terete, attenuate at the end to 4 inches long to  $1\frac{1}{4}$  tenth broad.*

2. PIPER *macrophyllum*. Folia oblonga ovato-ellipticaque glabra basi inaequalia, alterna, venis patentibus. Petioli alati.—Leaves oblong and ovato-elliptic, glabrous, unequal at the base, alternat; veins patent. Petioles winged. *Obs.* 12265. 12266. *Spe-*

cimens gatherd by Wright in Jamaica.—*Swartz. prodr.* 15; *occid.* i. 54. *Linn. a Willd.* i. 163; *a Roem. & Schult.* i. 301; *a Spreng.* i. 111. *Vahl. enum.* i. 322. *Kunth. aequin.* i. 103. *Haw. succ.* 3. *Hort. kew. ed. I.* i. 70.

*P. Browne, Patr.* 122. n. 4.

*P. longum arboreum*, foliis latissimis. *Sloane cat.* 45; *hist.* i. 135. t. 88. f. 1.

(*P. longum officinale. Pluk. t.* 104. f. 4 has leaves equal at the base.)

Glabrous. *Branches* striate. *Leaves* 6 inches long, acute obtuse and emarginate; veins patent, alternat and opposit. *Petioles* short. *Spikes* cylindric, acute, ascending, half as long as the leaves, from  $\frac{1}{4}$  to 1 tenth broad.

3. *PIPER clusiaefolium*. Folia rhombeo-ovalia venosa.—*Leaves* rhombeo-oval, veined. *Obs.* 8105. Specimen without fructifications gatherd in Upton garden.—Specimen in Mr. Knowltons herbarium.—*Jacq. rar.* ii. t. 212. *Linn. a Willd.* i. 159.

*P. obtusifolium. Vahl. enum.* i. 339. *Linn. a Spreng.* i. 118, who has another obtusifolium at p. 120. n. 203.—*Linn. sp.* i. 42. *Hort. kew. ed. I.* i. 49.

*P. longum humilium*, fructu summitate caulis prodeunte. *Sloane cat.* 45; *hist.* i. 136.

*Saururus. Browne, Patr.* 204, n. 4. *Plum. pl. d'amer.* 53. t. 70.

*Leaves* similar to those of the preceding specimen, but the ribs underneath pubescent. *Petioles* pubescent.

4. *PIPER Amalago*. Folia quinquenervia elliptico-ovata ellipticaque, acuminata acutaque, margine basi reflexo.—*Leaves* quinquenervose elliptico-ovate and elliptic, acuminate and acute; margin at the base reflex. *Obs.* 12264. Specimen gatherd by Broughton in Jamaica.—*Bot. mat. med.* i. 81. *Linn. a Willd.* i. 160; *a Roem. & Schult.* i. 306; *a Spreng.* i. 112. *Haw. succ.* 4. *Hort. kew. ed. II.* i. 69. *Burm. N. ind.* 14? *P. Sloane hist.* i. 134. t. 87. f. 1.

*P. frutex. Pluk. alm.* 297. t. 215. f. 2. *Spikes* axillary.

*Stem* glabrous; joints swoln. *Leaves* thin, glabrous

and pubescentulous, cordate and subglandular at the very base, in other specimens undulate at the base, in other specimens unequal at the base; laminae 2 to 4 inches long; outer rib on each side extending to a fourth and a third of the length of the leaf. *Petioles* glabrous and pubescentulous. *Stipulae* subulate, curv'd, solitary, at the base of the petiole. *Spikes* terete, opposit to the leaves, axillary, in some specimens on short ramuli with a single leaf, straight and slightly curv'd, as long as and shorter than the laminae of the leaves, patent and ascending. *Germen* oblong. *Style* almost none. *Stigma* obtuse, emarginate, thicker than the style. *Seeds* crowded, ovate and oblongo-ovnl, from  $\frac{1}{2}$  to 1 tenth long, of the flavour of those of *P. nigrum*.

5. *PIPER nigrum*. Folia cordato-ovata acuminata septemplinervia coriacea glabra. Spicae terminales.—Leaves cordato-ovate acuminate septemplinervose coriaceous glabrous. Spikes terminal. *Obs.* 8662. Specimen lent me by Wright. The account of the spikes from *Linn. a Spreng.* i. 112, *Vahl. enum.* i. 329, *cop. in Linn. a Roem. & Schult.* i. 307 and from *Woodv.* 513. t. 187, the upper leaf represented as septemnervose, the lowermost the least inaccurate.—*Bot. mat. med.* i. 77. *Linn. a Murr.* 74; *a Willd.* i. 159. *Roxb. ind.* i. 153. *Hunt. in asiat. res.* ix. 383. *Haw. succ.* 4. *Hort. kew. ed. II.* i. 69. *Willd. suppl.* 3.

*P. trioicum*. *Roxb. ind.* i. 158? tho the leaves described as glaucous and the spikes pendulous. If not the plant the native place of *P. nigrum* is stil to be sought for.

Pepper. *Marsd. sumatra* 129. t. 1.

6. *PIPER plantagineum*. Folia cordato-ovata acuminata glabriuscula, alterna, juniora pubescentia. Petioli pubescentes.—Leaves cordato-ovate acuminate nearly glabrous, alternat, the younger pubescent. Petioles pubescent. *Obs.* 12263. Specimen gathered by Broughton in Jamaica.—*Vahl. enum.* i. 330. (*Linn. a Roem. & Schult.* i. 309; *a Spreng.* i. 113, and *P. medium*. *Linn. a Willd.* i. 160. *Willd. enum.* i. 47. *Link. enum.* i. 37 are allied to *P. Amalago*.)

*Leaves* subcoriaceous, nearly opaque, without transparent dots, some leaves subquincunervose, others veined; veins patulous.

7. *PIPER umbellatum*. Folia cordata acuta multinervia, nervis pubescentibus. Spicae umbellatae.—Leaves cordate acute multinervose; ribs pubescent. Spikes umbellate. *Obs.* 8009. Specimen of a leaf and spikes gathered by Broughton in Jamaica.—*Bot. mat. med.* i. 83. *Vahl. enum.* i. 336. *Linn. a Roem. & Schult.* i. 314; *a Spreng.* i. 114 *Willd. suppl.* 3. *Jacq. ic. t.* 216. *Haw. succ.* 3. *Link. enum.* i. 37 is described as having petioles entirely villose.

*Peperomia umbellata*. *Kunth. aequin.* i. 124.

*Leaves* minutely tuberculate; tubercles crowded, pellucid by transmitted light; ribs 13, the middlemost triplinervose pubescent; veins pubescent; sinus acute. *Petiole* apparently with an articulation 2 inches below the end, pubescent above and along the margins, nearly glabrous on the back, and on the face from the articulation to above the middle. *Spikes* cylindric, obtuse, to 4 inches long, a tenth broad. *Flowers* minute, in quincunx order.

8. *PIPER cuneifolium*. Folia oblongo-obovata subseptemnervia emarginata. Spicae binae terminales.—Leaves oblongo-obovate subseptemnervose emarginate. Spikes in pairs, terminal. *Obs.* 12276. Specimen of a leaf and 2 spikes, gathered by Broughton in Jamaica.—*Jacq. ic. ii. t.* 214. *Vahl. enum.* i. 340. *Linn. a Roem. & Schult.* i. 317; *a Spreng.* i. 115. *Willd. enum.* i. 47. *Link. enum.* i. 38. *Sweet lond.* 8. *Haw. succ.* 6, where for hort. vind. read ic.

*P. emarginatum*. *Vahl. enum.* i. 339 and *Linn. a Spreng.* i. 118, from

*Peperomia emarginata*. *Ruis & Pav.* i. 33. *t.* 49. *f. a*, apparently a var.

Glabrous. *Leaf* 4½ inches long, 1½ broad, attenuate at the base, microscopically tuberculate; lower veins longitudinal, inserted at different distances. *Spikes* terete, pedunculate, the terminal one 2 inches long, 2 thirds of a tenth broad. *Bractees* of the peduncle oblong, acute, longer than the internodia of the peduncle.



9. **PIPER obcordatum.** Pubescentula. Folia obcordata alterna. Caulis repens.—Pubescentulous. Leaves obcordate alternat. Stem creeping. *Obs.* 12269. Specimen without fructifications gathered by Broughton in Jamaica.

*P. cordifolium.* Swartz. *prodr.* 16; *occid.* i. 71, *cop. in Vahl. enum.* i. 345, *Linn. a Willd.* i. 165; *a Roem. & Schult.* i. 321; *and a Spreng.* i. 118.

*Leaves* obcordate ovali-obcordate and cuneato-obcordate, similar to those of *P. quadrifolium*, pubescentulous on the face, glabrous on the back. *Petioles* a tenth long.

10. **PIPER rotundifolium.** Hirsuta. Folia orbiculata, floralia ovalia, pellucide punctata. Caulis repens. Spicae terminales.—Hirsute. Leaves orbiculate; floral leaves oval, with pellucid dots. Stem creeping. Spikes terminal. *Obs.* 12274. Specimen gathered by Broughton in Jamaica.—*Linn. sp.* i. 42; *a Murr.* 74; *a Willd.* i. 166; *a Roem. & Schult.* i. 323; *a Spreng.* i. 118. *Vahl. enum.* i. 347. Swartz. *obs.* 20.

*Saururus.* Browne, *Patr.* 204. n. 6. *Plum. pl. d'amer.* 52. t. 69. All the leaves orbicular.

2. *Leaves opposit and verticillate.*

11. **PIPER filiforme.** Folia oblonga obovataque apice pubescentia, summa verticillata. Caulis filiformis repens glabriusculus. Spicae terminales solitariae.—Leaves oblong and obovate, the uppermost verticillate. Stem filiform creeping nearly glabrous. Spikes terminal solitary. *Obs.* 12273. Specimen gathered by Broughton in Jamaica.—Swartz. *prodr.* 16; *occid.* i. 73; *ic. t.* 5. *Vahl. enum.* i. 351. *Linn. a Willd.* i. 169; *a Roem. & Schult.* i. 329; *a Spreng.* i. 121.

12. **PIPER blandum.** Folia terna lanceolata trinervia pubescentia. Spicae axillares terminalesque. Caulis pubescens.—Leaves in threes, lanceolate, trinervose, pubescent. Spikes axillary and terminal. Stem pubescent. *Obs.* 12548. Gathered by Mr. Baker in Oxford garden. 25 June.—*Linn. a Willd.* i. 164; *a Roem. & Schult.* i. 329; *a Spreng.* i. 119. *Link. enum.* i. 39. *Vahl. enum.* i. 352. *Horn.* i. 37. *Willd. enum.* i. 48.

*Jacq. ic. ii. t. 218. Moench. marp. ii. 124. (Haw. succ. 7 is characterised as having rhombéo-lanceolate leaves.)*

*Peperomia blanda. Kunth. aequin. ii. 120.*

Pubescent. Stem terete. Leaves rather obtuse, longer than the internodia, pendant,  $2\frac{1}{2}$  inches long.

13. *PIPER stellatum*. Folia elliptica trinervia verticillata, facie glabra, dorso pubescentia.—Leaves elliptic trinervose verticillate glabrous on the face pubescent on the back. Specimen in Mr. Knowltons herbarium.—*Swartz. prodr. 16; occid. i. 74; iii. 1967, cop. in Vahl. enum. i. 355. Jacq. ic. ii. t. 217. Linn. a Willd. i. 168; a Roem. & Schult. i. 332; a Spreng. i. 119. Haw. succ. 8, where for hort. vind. read ic. an error cop. in Sweet. lond. 8, and brit. 381. Hort. kew. ed. I. i. 49 a cancelled sheet, where said to be a nat. of Jamaica on the authority of Dr. T. Clark and to have been introduced by Mr. Forsyth.*

*P. pulchellum. Hort. kew. ed. I. i. 49; ed. II. i. 72.*

Native place and introduction the same as in the preceding paragraph.

14. *PIPER verticillatum*. Pubescens. Folia ovalia terna quaternaue. Spicae verticillatae. Caulis erectus.—Pubescent. Leaves oval, in threes and fours. Spikes verticillate. Stem erect. *Obs. 12275. Specimen gathered in Clifton garden in summer.—Obs. 12277. Specimen without fructifications gathered in Upton garden, where named P. verticillatum, but altered to stellatum. Sol. from an examination of the Banksian herbarium.—Obs. 12279. In Maresbrook garden. 30 Aug. coming into fl.—Linn. amoen. v. 391; sp. i. 43; a Willd. i. 168; a Roem. & Schult. i. 330; a Spreng. i. 119. Vahl. enum. i. 353. Willd. enum. i. 48. Hort. kew. ed. I. i. 50, foliis verticillatis rhombéo-ovatis intergerrimis petiolatis trinerviis pubescentibus, in a cancelled sheet, where said to be a native of Jamaica and to have been introduced in 1775 by Fothergill.*

*Saururus. Browne, Patr. 204. n. 9.*

Stem 5 inches long. Leaves oval obovate and rhombéo-oval,  $\frac{3}{4}$  to 4 tenths long, in some plants with

numerous globular opaque tubercles ; hairs incurvate. *Petioles* very short. *Spikes* attenuate at each end, one third of a tenth broad, at first half as long and as long as the leaves, at length 4 times as long as the leaves.

15. *PIPER polystachyon*. Pubescens. Folia triner-  
via quaterna ternaque ovalia rhombeo-ovalia obovato-  
rhombeaque.—Pubescent. Leaves trinervose in fours  
and threes, oval rhombeo-oval & obovato-rhombeous.  
*Obs.* 9352. In Darley garden. 5 Sept. 21 Nov.—*Hort.*  
*kew. ed I.* i. 49 ; *ed. II.* i. 72. *Vahl. enum.* i. 354. *Willd.*  
*enum.* i. 48. *Haw. succ.* 7. *Linn. a Willd.* i. 167 ; *a*  
*Roem. & Schult.* i. 330, where the stems described as  
glabrous.

*P. obtusifolium*. *Jacq. ic.* i. t. 9. *Linn. a Spreng.* i. 120,  
who has another *obtusifolium* p. 118. n. 168, with  
sessile spikes.

*Stem* terete, shining below, brownish crimson and  
greenish with the lower part and the base of the inter-  
nodia purplish red,  $1\frac{1}{2}$  tenth broad, a transverse section  
affording a beautiful object for the microscope. *Leaves*  
in threes, vertical, canaliculate, pubescent. *Petioles*  
patent. *Spikes* terete, attenuate each way, green, gla-  
brous, pedunculate. *Peduncles* longer than the petioles.  
*Bracteae* oval, peltate, erose at the margin, adpressed.  
*Stamina* at the base of the germen, one on each side,  
whitish. *Filaments* very short. *Antherae* turbinate,  
sulcate, apparently bilocular, apparently containing  
globular pollen, some not burst, others withered and  
turned blackish brown. *Style* none unless the point of  
the germen be such.

16. *PIPER reflexum*. Folia rhombea quaterna. Caulis  
tetraqueter.—Leaves rhomboidal, in fours. Stem  
square. *Obs.* 12271. Specimen without fructifications  
gathered by Broughton in Jamaica.—*Linn. fil. suppl.*  
91 ; *a Willd.* i. 168 ; *a Roem. & Schult.* i. 330 ; *a Spreng.*  
i. 121. *Vahl. enum.* i. 353.

*P. tetraphyllum*. *Forst. G. austr.* 5.

(*P. rhombeum*. *Vahl. enum.* i. 353 is described as having  
a terete stem)

*Stem* pubescentulous above, 6 inches long. *Leaves*  
subsessile, incumbent ; petioles pubescent ; laminae

rhomboïdal and ovali-rhomboid, glabrous, nitidulous on the back.

17. PIPER *quadrifolium*. Glabrum. Folia obcordata avenia quaterna quinaque. Caulis ascendens dichotomus. Spicae terminales solitariae.—Glabrous. Leaves obcordate, in fours and fives. Stem ascending dichotomous. Spikes terminal solitary. *Obs.* 12270. Specimen gathered by Broughton in Jamaica.—*Linn. sp.* i. 43 ; *a Willd.* i. 68 ; *a Roem. & Schult.* i. 331 ; *a Spreng.* i. 119. *Swartz. obs.* 22. *Vahl. enum.* i. 355. *Haw. suppl.* 3.

*Peperomia quadrifolia.* *Kunth. aequin.* i. 121.

*Saururus.* *Plum. a Burm.* 218. *t.* 242. *f.* 3.

*Leaves* nearly sessile. *Petioles* to a tenth long. *Spikes* an inch long,  $\frac{1}{4}$  tenth broad.

## Class 3.

## TRIANDRIA.

## Order 1.

## MONOGYNIA.

## 86. VALERIANA.

*Calyx* superus multipartitus, laciniis involutis. *Corolla* supera tubulata, limbo quinquefido. *Capsula* clausa bivalvis, calyce coronata.—*Calyx* superior multipartite; segments involute. *Corolla* superior, tubulate; limb quinquefid. *Capsule* not opening, bivalve, crown'd by the calyx. *Obs.* 7161. 3778. *Bot. mat. med.* i. 91. *Gaertn.* ii. 35. *t.* 86, cop. in *Vent. tabl. t.* 12. *f.* 6, with an added fl.

1. *Stamen* 1. *L.*

1. **VALERIANA rubra.** *Stamen* 1. *Corolla* calcarata. *Folia* integra.—*Stamen* 1. *Corolla* calcarate. Leaves entire. *Obs.* 11345. Specimen of the upper part of a stem a foot long, from Broussonet gather'd probably near Montpellier.—*Obs.* 5061. In a garden. 26 Aug.—*Obs.* 12010. Specimen in Mrs. Stovins herbarium gather'd on the walls of Glastonbury abbey in Somersetshire.—*Linn. sp. i.* 44. *Hort. kew. ed. I. i.* 51. *Honck. i.* 256.

*Centranthus ruber.* *Linn. a Spreng. i.* 16.

*Nat.* of Iberia Greece Croatia south of France Savoy and Switzerland.

*a ensifolia.* Leaves lanceolato-ensate. *Obs.* 11345.

*V. rubra*  $\beta$  *Linn. sp. i.* 44; *mant.* 319. *Gou. hort.* 21, on Mont St Loup and at L'Esperou near Montpellier; *monsp.* 61.

- V. angustifolia*. *Mill. Ph. dict. n. 2. Linn. a Willd.* i. 175. *Willd. suppl. 3. Vahl. enum. ii. 1. Sibth. prodr. i. 20. Bieb. i. 24.* On rocky hills about Tiflis in Iberia.—*Smith in cycl. xxxvi. n. 2.* Leaves more obtuse than those of  $\beta$ .
- Centranthus angustifolius*. *Lam. & Dec. iv. 289; syn. 297. Linn. a Roem. & Schult. i. 35.*
- V. Hall. hist. i. 93. n. 213  $\beta$*  In a rocky ascent leading from the Creux du vent.—*Ger. Lud. 216.* In alpine situations in Provence.
- V. rubra angustis et longioribus foliis. Pluk. atm. 379; phyt. t. 232. f. 3.*
- V. rubra angustifolia. Bauh. J. iii. 212.* On a hill near Nantua in Savoy.—*Bauh. Casp. prodr. 88.* No fig.—*Raii eur. 258; hist. i. 389. Boerh. i. 74. Magn. monsp. 273.* In the fissures of rocks on Mont St Loup and Mount Capouladou.  
*Leaves* finely attenuate from about the middle, entire at the margin, longer than the internodia, to  $2\frac{1}{4}$  tenths broad, twice as broad as the stem. *Corolla*, spur as long and twice as long as the germen.
- $\beta$  latifolia.* Leaves lanceolate elliptic and ovato-elliptic. *Obs. 5061. 12010.*
- V. rubra. Linn. sp. i. 44  $\alpha$ ; a Willd. i. 175. Willd. enum. i. 50,* on rubbish in the Levant Barbary Italy France and Switzerland.—*Vahl. enum. ii. 1.* On rubbish.—*Pollin. i. 38. Seb. & Maur. 15. Host. fl. i. 34; syn. 20.* Near Fucine in Croatia.—*Thaill. 15.* On walls.—*Gou. hort. 21; monsp. 61. Gaertn. ii. 35. t. 86, cop. in Vent. tabl. t. 12. f. 6,* with a fl.—*Asso 4.* About Villarluengo Camarena and Badenas.—*Schult. obs. 12. Moench. marb. i. 639. Huds. 12.* On old walls and rubbish in Devonshire and Cornwall.—*Sibth. ox. 20.* On the walls of Merton College; *prodr. i. 20.* On the mountains of Morea.—*Smith. brit. i. 37,* walls of old towns; *engl. i. 42.* Chalk pits of Kent.—*Relh. ed. I. 13.* On old walls about Cambridge and Ely.—*Wade 11. Hook. scot. i. 14. Bot. arr. i. 35. Vaill. paris. 199. Boerh. i. 74. Raii eur. 258.* In Sicily and Italy on walls and rocks.—*Dod. purg. 91, repr. in pempt. 348,* and

*Ger. by Johns.* 678, *cop. in Park. theatr.* 123; *imitt. in Ger. J.* 550, *cop. in*

*Polemonii* species. *Dalech.* ii. 1187, and *repr. in Ocimastrum Valerianthon. Lob. obs.* 184, and *ic.* i. 341.

*V. Hall. hist.* i. 93. n. 213 a On the castle of Tourbillon near Sion in the Vallais.—*Ger. Lud.* 216. Stony tracts in Provence.

*Centranthus ruber.* *Linn. a Roem. & Schult.* i. 35. *Lam. & Dec.* iv. 239; *syn.* 297. In stony places and on the sea coast of the south of France.

*Polemonii altera figura.* *Dalech.* ii. 1187.

*V. marina.* *Moris. umb. t.* 11.

*V. rubra latifolia.* *Bauh. J.* iii. *pars* ii. 211. On a hill near Nantua between Lyons and Geneva.

*Leaves* ovato-elliptic, subdentate flexuose and entire at the margin; those of axillary shoots lanceolate, flexuose. *Obs.* 12010.

*Nat.* of Greece Sicily Italy and the south of France and *naturalised* on old walls and rubbish in the neighbourhood of towns in Switzerland Spain the north of France Britain and Ireland.

γ *rubens.* Corolla purplish red. *Obs.* 3779. In a garden. δ *sanguinea.* Corolla bloodcoloured. *Obs.* 5061.

*V. rubra Dodonaei.* *Park. par.* 386. t. 387. f. 3.

*Leaves* dentate below, very entire above. *Panicle* pyramidal, decussate; branches dichotomous to five times. *Flowers* sessile, solitary, at the dichotomies and sides of the extreme ramuli. *Calyx* superior; cyathine, multifid; segments 17, rolled inwards, when in fruit plumose, red below, whitish above, recurvate, 1½ as long as the capsule. *Capsules* ripening and falling off in succession, not opening, monospermous, lanceolato-ovate, depressed, slightly incurvate, nearly 2 tenths of an inch long, olive tawny; lower side striate, quinquenervose, flattish; upper side smooth, uninervose, convex. *Tunic* membranaceous, transparent, colourless. *Perisperm* extremely thin, whitish, minutely tessellate, not separable but by scraping; areolae rather opaque; interstices transparent. *Corculum* ferulate, clavate, compressed, inverted, strawcoloured, granular; granules large, in lines. *Cotyledons* 2, adpressed.

*Rostellum* cuneate, rather rounded below, nearly four times shorter than the cotyledons.

ε *alba*. Corolla white. *Obs.* 6083. In Codnor garden.  
V. *Boerh.* i. 74. n. 10.

2. VALERIANA *Calcitrapa*. Stamen 1. Corolla basi gibbosa. Folia pinnatifida.—Stamen 1. Corolla gibbous at the base. Leaves pinnatifid. *Obs.* 3777. Specimen from Dr. Heise.—*Linn. sp.* i. 44; a *Willd.* i. 175. *Horn.* i. 46. *Willd. enum.* i. 50. *Schult. obs.* 12. *Sibth. prodr.* i. 20. *Vahl. enum.* ii. 1. *Asso* 4. *Moench. marb.* i. 639. *Gou. hort.* 21; *monsp.* 61. *Lam. & Dec.* iv. 238; *syn.* 297. *Hort. kew. ed. I.* i. 51; *ed. II.* i. 73. *Mill. Ph. dict. n.* 5. *Smith in cycl.* xxxvi. n. 3. On walls near Chelsea.

*Centranthus Calcitrapa*. *Lam. & Dec.* v. 492. *Linn. a Roem. & Schult.* i. 35; a *Spreng.* i. 16.

V. *Linn. ups.* 14. n. 4. *Sauv.* 275. n. 47. *Boerh.* i. 74. n. 4.

V. *annua*. *Raii hist.* i. 390. *Clus. hist.* ii. 54, *repr. in Ger. by Johns.* 1077, and *cop. in*

V. *petraea*. *Park. theatr.* 123.

*Leaves*, the lower lyrate. *Panicle* obovate; branches opposit, dichotomous. *Bractea*e ensate connate. *Corolla* tubiform, with a slight gibbosity at the base. *Calyx* of the fruit octodecimpartite; segments setaceous-ensate, pilose on the inner side, involute. *Fruit* ensate, somewhat more than a tenth long.

## 2. Stamina 3. L.

3. VALERIANA *celtica*. Folia oblonga integerrima. Flores subspicati.—Leaves oblong, entire at the margin. Flowers subspicate. *Obs.* 3785. Specimen of the upper part of the stem, 2 inches long, from Baron Jacquin.—*Bot. mat. med.* i. 91. *Linn. sp.* ii. 1676; a *Willd.* i. 178; a *Roem. & Schult.* i. 358; a *Spreng.* i. 140. *Schrad. germ.* i. 90. *Vahl. enum.* ii. 15. *Lam. & Dec.* iv. 236; *syn.* 297. *Dec. & Dub.* i. 254. *Pollin.* i. 42. *Host. fl.* i. 37. *Jacq. coll.* i. 24. t. 1; *vind.* 7. 203, who says that the stem in Clusiuss fig. represents V. saxatilis with entire leaves and the panicle a shortish panicle of V. elongata.



V. *Hall. hist.* i. 91. n. 209.

Nardus celtica. *Lob. ic.* i. 313, *imit. in Ger. J.* 919.

Nardus celtica repens. *Ger. J.* 919, roots and radical leaves.

*Leaves* 8 tenths long, glabrous. *Floral leaves* lanceolato-linear. *Spike* terminal, 4 tenths long, with a pedunculate spike in the axilla of the lower floral leaves. *Bractee* ensato-linear. *Germen* ensato-oblong, compressed shorter than the bractee. *Calyx* decempartite, when rolled up broader than the germen; segments when unrolled ensate villose, as long as the germen. *Corollae* none.

4. VALERIANA *saxatilis*. Stamina 3. Corolla basi subgibbosa. Folia hinc inde dentata, margine villosula, radicalia elliptica trinervia, caulina lanceolato-linearia.—Stamina 3. Corolla slightly gibbose at the base. Leaves here and there dentate, villosulose at the margin; radical leaves elliptic trinervose; cauline leaves lanceolato-linear. *Obs.* 8011. Specimen from Baron Jacquin.—*Linn. sp.* i. 46; ii. 1676; *mant.* 319; *a Willd.* i. 179; *a Roem. & Schult.* i. 357; *a Spreng.* i. 141. *Jacq. vind.* 7. 204; *austr.* iii. t. 267. *Honck.* ii. 267. *Retz. obs.* ii. 7. *Scop. carn.* i. 35. *Schrad. germ.* i. 89. *Host. fl.* i. 38; *syn.* 21. *Hort. kew. ed.* II. i. 78. *Lam. & Dec.* iv. 237; *syn.* 297. *Dec. & Dub.* i. 254. *Pollin.* i. 42. *Smith in cycl.* xxxvi. n. 38. *Vahl. enum.* ii. 14. *Will. ill.* 47. n. 61. (*Krock.* i. 47. t. 6, does not accord with the descr. and has the habit of *V. dioica*.)

V. *All. nic.* 39. n. 3. *Clus. pann.* 513, *repr. in hist.* ii. 56, and

V. alpina angustifolia. *Ger. by Johns.* 1077, and *cop. in*

V. alpina major. *Park. theatr.* 121, and

V. minima. *Bauh. J.* iii. *pars* ii. 206, inner fig. The outer fig. is a smaller plant with all the leaves entire.

V. alpina parva. *Pluk. alm.* 380; *phyt. t.* 232. f. 2.

*Stem* 9 inches to a foot long, slightly curvd. *Leaves* petiolate; *radical leaves* trinervose and quinquenervose, elliptic and obovato-elliptic, entire and dentate;

teeth linear, mostly one on each side, patulous and horizontal; cauline leaves oblongo-lanceolate; floral leaves linear. *Petioles* of the radical leaves longer than the laminae. *Panicle* turbinate, at length oblong; branches opposit. *Bractea* oblongo-ensate. *Flowers*  $2\frac{1}{2}$  tenths long. *Germen* oblong. *Calyx* multipartite, permanent; segments involute, villose. *Corolla* quinquefid, cyathine, with a very slight gibbosity just above the base, microscopically reticulate, octonervose below; segments oblong, trinervose; anastomosing ribs horizontal. *Stamina* extended beyond the corolla, 2 inserted near the end of the tube below the 2 alternat commissures, the 3rd at the base of the tube. *Style* filiform, just shorter than the corolla. *Stigma* turbinate, semitrifid. *Capaule* ensato-oblong, shorter than the corolla.

*Nat.* of Mount Caucasus Stiria Carniola Austria and Nice.

5. **VALERIANA** *elongata*. Stamina 3. Corolla rotata. Folia caulina dentata subsessilia ovata cordataque.—Stamina 3. Corolla rotata. Cauline leaves dentate, subsessile, ovate and cordate. *Obs.* 11344. Specimen from Baron Jacquin.—*Jacq. vind.* 7. 205. *t.* 1; *austr.* iii. *t.* 219. *Linn. sp.* ii. 1664; *a Willd.* i. 179; *a Roem. & Schult.* i. 35; *a Spreng.* i. 140. *Scop. carn.* i. 35. *Honck.* i. 268. *Vahl. enum.* ii. 13. *Schrad. germ.* i. 92. *Host. fl.* i. 38; *syn.* 22. *Smith in cycl.* xxxvi. n. 36. *Sweet brit.* 203. *Honck.* i. 268. *Nardo celticae similis alia.* *Linn. amoen.* i. 314.

*Root* fibrous, as long as the stem. *Stem* 4 inches long. *Leaves* dentate, gradually larger upwards; floral leaves sessile. *Panicle* 2 inches long, leafy at the base. *Corolla* quinquefid; segments oblong and ensate, obtuse and acute, trinervose uninervose and quadrinervose. *Stamina* 3. *Germen* oblong, crenate at the end. *Style* trilobate.

6. **VALERIANA** *montana*. Stamina 3. Corolla supra basin gibbosa. Folia dentata basi cuneata, radicalia ovato-elliptica, caulina ovato-elliptica elliptica ternataque foliolis ovato-ellipticis ellipticisque. *Peti-*

oli lineares caule vix angustiores.—Stamina 3. Corolla gibbous above the base. Leaves dentate cuneate at the base; radical leaves ovato-elliptic; cauline leaves ovato-elliptic elliptic and ternate; folioles ovato-elliptic and elliptic. Petioles linear nearly as broad as the stem. *Obs.* 3783. Specimen gathered in Upton garden.—*Obs.* 3781. Specimen gathered in Upton garden under the name of *V. tripteris*.—*Bieb.* i. 25. 414; iii. 26. *Linn. sp.* i. 45; apparently from Hall. ii. 1676; *a Willd.* i. 178; *a Roem. & Schult.* i. 354; *a Spreng.* i. 141. *Horn.* i. 47. *Lam. & Dec.* iv. 235; *syn.* 296. *Dec. & Dub.* i. 254. *Scop. carn.* i. 34; *ann.* ii. 43. *Schrad. germ.* i. 88. *Vahl. enum.* i. 9. *Hort. kew. ed. I.* i. 52; *ed. II.* i. 72. *Krock.* i. 46. *Host. fl.* i. 37. *Jacq. vind.* 7. 202; *austr.* iii. t. 269. *Wahl. helv.* 8; *carp.* 11. *Smith in cycl.* xxxvi. n. 26. *Dalech.* ii. 1127, is represented as having the uppermost leaves shorter than the panicle.

*V. Hall. hist.* i. 93. n. 212; *opusc.* 184. n. 9.

*V. alpina*, foliis integris. *Raii hist.* i. 389; *eur.* 259.

*a simplicifolia* (Variation) Leaves simple. *Obs.* 3783.

*V. tripteris.* *Lam. & Dec.* v. 491  $\beta$

*Stem* simple, a foot long. *Leaves* microscopically pubescent; those of the stem gradually longer upwards, the upper elongately acuminate. *Panicles* convex, pubescent. *Flowers* somewhat more than 2 tenths long.

$\beta$  *ternatifida* (Variation) Cauline leaves ternatifid.

*Obs.* 3781.

*Stem* 8 inches long. *Leaves* of the middle of the stem longer than those below, those of the end rather shorter than the lowermost; folioles elliptic and lanceolate, acute, irregularly repandose; intermediate foliole of the lower leaves ovate and elliptic, that of the upper lanceolate. *Flowers*  $1\frac{1}{2}$  tenth long. *Calyx* superior, obtusely crenate. *Corolla* gibbous above the base on one side; limb quinquefid. *Style* filiform. *Stigma* trilobate. *Capsule* not opening, oblongo-ensate, compressed, lineate on one side, trinervose on the other.

7. **VALERIANA tripteris.** Stamina 3. Corolla supra basin gibbosa. Folia dentata, radicalia cordata, caulina ternata foliolo terminali ovato.—Stamina 3.

**Corolla** gibbous above the base. **Leaves** dentate; radical leaves cordate; cauline leaves ternate; folioles ovate. *Obs.* 12626. Specimen gathered by Dr. Johnson in Switzerland.—*Linn. sp.* i. 45; ii. 1676; *a Willd.* i. 177; *a Roem. & Schult.* i. 355; *a Spreng.* i. 141. *Jacq. vind.* 7. 201; *austr.* iii. t. 268. *Schrad. germ.* i. 87. *Willd. enum.* i. 51. *Lam. & Dec.* iv. 234; *syn.* 296. *Dec. & Dub.* i. 254. *Vahl. enum.* ii. 10. *Host. fl.* i. 37; *syn.* 20. *Schult. obs.* 12. *Scop. carn.* i. 34. *Gou. hort.* 22; *monsp.* 68. *Hort. kew. ed. I.* i. 52; *ed. II.* i. 74. *Moench. marb.* ii. 269. *Honck.* i. 264. *V. Hall. hist.* i. 92. *Sauv.* 134. n. 93; 276. n. 51. *V. alpina minor.* *Park. theatr.* 121. *Pluk. alm.* 380; *phyt. t.* 231. f. 7.

*V. minima.* *Pluk. alm.* 380; *phyt. t.* 231. f. 8.

*V. alpina prima.* *Bauh. Casp. prodr.* 86. t. All the leaves in the outer stem simple. Inner stem imit. in

*V. alpina.* *Bauh. J.* iii. *pars* ii. 208. *Raii eur.* 258; *hist.* i. 390.

Glabrous. **Stem** 10 inches long. **Leaves** petiolate, one pair about the middle of the stem; terminal foliole ovate, with a small foliole on one side of the petiole a little above the middle; floral leaves ensate, shorter and longer than the panicle. **Bractee** setaceo-ensate. **Flowers**  $1\frac{1}{2}$  tenth long. **Corolla** quinquefid; segments unequal, oblong.

8. **VALERIANA** *Hardwickii*. **Stamina** 3. **Corolla** supra basin gibbosa. **Folia** radicalia cordato-ovata crenato-dentata, caulina ternata pinnatifida pinnataque. —**Stamina** 3. **Corolla** gibbous just above the base. **Radical** leaves cordato-ovate, crenato-dentate; **cauline** leaves ternate pinnate and pinnatifid. *Obs.* 11343. Specimen from Smith, from Nepaul in India.—The account of the pinnate and pinnatifid leaves from *Roxb. ind.* i. 166.

*V. Hardw. in asiat. res.* vi. 350.

**Root** tuberous, with lateral fibres. **Stems** 6 to 9 inches long, hirsutulous, attenuate. **Radical** leaves several, hirsutulous; **laminæ** an inch long; **crenations** unequal, acute and obtuse; **sinuses** rounded; **petioles** twice as long as the **laminæ**; **cauline** leaves opposit,

*syn.* 296. *Dec. & Dub.* i. 254. *Horn.* i. 47. *Vahl.* *enum.* ii. 11. *Willd. suppl.* 4. *Smith engl.* i. 44; *in cycl.* xxxvi. n. 30. *Hook. scot.* i. 15. *Hort. kew. ed.* II. i. 75. *Link. enum.* i. 63. *Grev.* 8.

*V. maxima.* *Tourn. inst.* 131; *schol. bot.* 153. *Pluk. alm.* 380; *phyt. t.* 232. *f.* 1, upper part of the stem. *Nard de montagne.* *Dalech. plantes* i. 805.

*Leaves* crenato-serrate, similar to those of *Erysimum Alliaria*. *Flowers* 3 tenths long. *Germen* oblong. *Calyx* multipartite; segments involute. *Corolla* infundibulate; tube cylindric, as long as the breadth of the germen; limb cyathine, quinquefid. *Stamina* inserted at the base of the limb, extended beyond the corolla. *Style* 1.

*Nat.* of the Pyrenees and naturalised in Scotland.

13. *VALERIANA officinalis.* *Stamina* 3. *Folia* pinnata, foliolis serrato-dentatis. *Caulis* teres striatus.—*Stamina* 3. *Leaves* pinnate; folioles serrato-dentate. *Stem* terete, striate. *Obs.* 8010. *July.*—*Bot. mat. med.* i. 96. *Linn. a Willd.* i. 177; *a Roem. & Schult.* i. 351; *a Spreng.* i. 142; *hal.* 19. *Vahl. enum.* ii. 6. *Willd. enum.* i. 50. *Schrad. germ.* i. 85. *Lam. & Dec.* iv. 233; *syn.* 296. *Dec. & Dub.* i. 254. *Bluff. & Fing.* i. 42. *Gmel. C. bad.* i. 65. *Pollin.* i. 39. *Seb. & Maur.* 15. *Both. enum.* i. 104; *germ.* i. 16; ii. *pars* i. 38. *Poll.* i. 28. *Wahl. carp.* 11; *ups.* 13; *succ.* i. 18; *lapp.* 12; *helv.* 8. *Smith. engl.* i. 43. *Bieb.* i. 24. *Bess. enum.* 4. *Asso* 4. *Gou. hort.* 21; *monsp.* 469. *Baumb. trans.* i. 56. *Krock.* i. 45. *Host. fl.* i. 35; *syn.* 20. *Schlect. ber.* i. 22. *Kunth. ber.* 12. *Moench. marb.* i. 639. *Lightf.* i. 85. *Hook. scot.* i. 15. *Link. in tr.* 68. *North of Spain and Portugal.* *V. Linn. lapp. n.* 15. *Hall. hist.* i. 91. n. 210. *V. foemina.* *Moris. umb. t.* 10. *C.* A leaf. *V. sylvestris.* *Besl. hort. aest. ord.* 9. *fol.* 12. *Dod. purg.* 87, *repr. in Clus. hist.* ii. 55, *Lob. obs.* 411, *and ic.* i. 715. *V. major.* *Ger. J.* 917.

*Stem* villose below, glabrous above, to 5 feet long, simple. *Leaves* dull; folioles lineate. *Petioles* canaliculate. *Bracteae* ensate. *Flowers* sessile, solitary,

4 tenths long. *Germen* ovate, attenuate, compressed; one side with 1 ridge, the other side with 3 ridges. *Corolla* superior, infundibulate, thrice as long as the germen, fleshcoloured; tube tubiform, slightly gibbous at the base on one side, shewing its connexion with the calcarate species. *Stamina* somewhat longer than the corolla. *Style* as long as the corolla. *Stigmata* 3, filiform, erect; vasa deferentia 3, 1 from each stigma.

*Nat.* of Europe from Caucasus Rome and the north of Spain and Portugal to Scotland and Lapland.

37. FEDIA.

*Calyx* superus dentatus. *Corolla* supera infundibuliformis, quinquefida. *Capsula* clausa, bivalvis, monosperma, calyce coronata.—*Calyx* superior dentate. *Corolla* superior infundibulate quinquefid. *Capsule* closed bivalve monospermous, crown'd by the calyx. *Obs.* 3984. 3787. 7120. *Gaertn.* ii. 36. t. 86. *Vahl.* enum. ii. 18.

*Valerianella.* *Tourn. inst.* 132. t. 52. *Lam. & Dec.* iv. 240; *syn.* 297; *Dec. & Dub.* i. 252.

1. *FEDIA ecalyculata.* *Capsula* subrotundo-ovata, compressa utrinque bilirata. *Calyx* obsoletus. *Flores* capitati.—*Capsule* subrotundo-ovate, compressed, with 2 ridges on each side. *Calyx* obsolete. *Flowers* capitate. *Obs.* 7120. *Bot. mat. med.* i. 98.

*F. olitoria.* *Gaertn.* ii. 36. t. 86. *Linn. a Roem. & Schult.* i. 361; *a Spreng.* i. 143. *Bieb.* iii. 27. *Kunth. ber.* 12. *Schrad. germ.* i. 95. *Smith engl.* i. 45. *Hook. scot.* i. 15. *Grev.* 8. *Willd. enum.* i. 52. *Pollin.* i. 45.

*Valerianella Locusta.* *Betck.* 10. t.

*Valerianella olitoria.* *Lam. & Dec.* iv. 240; *syn.* 297. *Dec. & Dub.* i. 252. *Host. fl.* i. 39. *Seb. & Maur.* 15. *Schlect. ber.* i. 22.

*Valeriana olitoria.* *Bieb.* i. 25. *Wahl. carp.* 12; *ups.* 14; *susc.* i. 19.

*Valeriana Locusta.* *Mart. T. rust. t.* 24. *Lightf.* i. 85.

*Valerianella.* *Hall. hist.* i. 94. n. 214. *Dill. giss.* 47. In May.

*Lactuca agnina latifolia.* *Ger. J.* 242.

*β oblonga.* Capsules oblong, bilocular. *Obs.* 7065. In Mr. Williamss garden from a plant gathered at Calver in Derbyshire.

*Valerianella carinata.* *Lam. & Dec.* v. 492. *Dec. & Dub.* i. 252. *Linn. a Roem. & Schult.* i. 361; *mant.* i. 266; *a Spreng.* i. 148. *Betck.* 15. *t. Bieb.* iii. 29?

*Valeriana Locusta olitoria.* *Fl. dan. t.* 738.

*Valeriana Locusta.* *Bot. arr.* i. 37  $\beta \gamma \delta$  ( $\xi$  is *Valeriana Locusta pumila.* *Linn. a Murr.* 81.)

2. *FEDIA dentata.* Capsula ovata depressa plano-convexa, latere convexo unilirato, latere plano trilirato. Calyx obliquus. Flores solitarii paniculae dichotomiis. —Capsule ovate depressd plano-convex; the convex side with 1 ridge; the flat side with 3 ridges. Calyx oblique. Flowers solitary in the dichotomies of the panicle. *Obs.* 7060. In a newly laid down pasture near Chesterfield.—*Obs.* 3984. In a corn field near Chesterfield on gritstone on which I have not hitherto observed *F. ecalyculata.*—*Vahl. enum.* i. 20. *Schrad. germ.* i. 96. *Linn. a Roem. & Schult.* i. 361; *a Spreng.* i. 143; *hal.* 20; *mant.* ii. 5. *Willd. enum.* i. 52. *Schlect. ber.* i. 23. *Smith. engl.* i. 45. *Hook. scot.* i. 15. *Pollin.* i. 45. *Baumg. transyl.* i. 59. *Bess. enum.* 4. *Bieb.* i. 26; iii. 31. *Wib.* 87. *Hell.* i. 46. *Bluff & Fing.* i. 46. *Gmel. C. bad.* i. 73. *Roth. enum.* i. 113. *Kunth. ber.* 13.

*Valerianella dentata.* *Poll.* i. 30. *Moench. marb.* ii. 186. *Lam. & Dec.* iv. 241; *syn.* 297. *Dec. & Dub.* i. 252. *Host. fl.* i. 39. *Betck.* 23. *t.*

*Valeriana dentata.* *Roth. germ.* i. 17; ii. 40. *Linn. a Willd.* i. 183; *ber.* 19. *Host. syn.* 22. *Smith brit.* iii. 1385. *Schult. C. starg.* 12. *Honck.* i. 272.

*Valeriana Locusta.* *Linn. sp.* i. 48  $\delta$  *Gou. hort.* 22; *monsp.* 68. *Scop. carn.* i. n. 46.

*Valeriana Valerianella.* *Reich.* i. 9.

*Valerianella.* *Hall. hist.* i. 94. n. 215. *Tourn. inst. t.* 52. *f. M. N.*

*Valeriana.* *Dalib.* 12. n. 5.

*Valerianella altera.* *Col. ecphr.* i. 208. *t.* 209.

*Valerianella umbilicato semine hirsuto minore.* *Moris. umb.* 53. t. 1. f. 56. 57.

*Olus album.* *Dod.* 636, repr. in

*Lactuca agnina.* *Ger. by Johns.* 310, as evident from the capsules at the dichotomies.—*Ger. J.* 242, cop. in

*Locusta herba prior.* *Bauh. J.* iii. 323.

*Stem* ascending, dichotomous from the base, 2 to 5 inches long, quadrate; angles pubescenti-hirsute with deflex hairs. *Leaves* linear, rounded at the end, opposit; margin pubescenti-hirsute; hairs patulous. *Flowers* solitary, in the upper dichotomies, erect. *Germen* oblong, glabrous. *Calyx* superior, erect, sparingly and microscopically hirsute; when the flower newly expanded sexfid; segments unequal, 2 rather larger than the rest, one of which truncate with a small one between them; as the flower advances quadripartite, segments ovate, one twice as large as the rest, 2 opposit to the larger segment, and a fourth between the 2 and the large one, with a fissure extending to the germen opposit to the 4th segment. *Corolla* infundibulate, nearly as long as the germen, white tinged with purple, erect, in the center of the receptacle. *Stamina* 2 and 1, inserted into the corolla. *Style* somewhat longer than the corolla, thicker than the filaments. *Stigma* trifid. *Obs.* 7060.—*Stem* 1½ foot long, scabrous, dichotomous, angular. *Leaves* linear, attenuate, the upper dentate at the base; teeth subulate. *Flowers* solitary, sessile, minute, 1 tenth long. *Germen* hirsute. *Calyx* superior, erect, quadrifid, permanent; segments triangular, one twice as large as the rest. *Corolla* cyathine, whitish fleshcoloured; limb quinquepartite; segments oval, one twice as long as the rest, opposit to some of the smaller segments of the calyx. *Stamina* 3, inserted below 3 of the commissures. *Polken* globose. *Style* filiform. *Stigmata* 3; vasa deferentia 3. *Capsule* ovate, hirsute; hairs erect. *Obs.* 3984.

3. *FEDIA Cornucopiae.* *Stamina* 2. *Corolla* ringens. *Folia* sessilia ovata oblongaque. *Capsulae* prismaticeae. *Calyx* trifidus, laciniis emarginatis.—*Stamina*



2. Corolla ringent. Leaves sessile ovate and oblong. Capsules prismatic. Calyx trifid; segments emarginate. *Obs.* 3800. Specimen from Dr. Heise.—*Vahl. enum.* ii. 19. *Willd. enum.* i. 51. *Gaertn.* ii. 37. t. 88. *Linn. a Roem. & Schult.* i. 360; *a Spreng.* i. 143. *Lam. & Dec.* iv. 240; *syn.* 297. *Dec. & Dub.* i. 253. *F. incrassata.* *Moench. marb.* i. 486.
- Valeriana Cornucopiae.* *Linn. sp.* i. 44. *Burm. N. ind.* 15. *Sibth. prodr.* i. 21. *Hort. kew. ed. I.* i. 51; *ed. II.* i. 76. *Bot. reg. t.* 155.
- Valerianella cornucopioïdes rubra.* *Moris. umb.* 53. t. 1. f. 47.
- Valerianella cornucopioïdes*, flore galeato. *Tourn. inst.* 133. t. 52. *PQR.*
- Valeriana peregrina.* *Bauh. Casp. prodr.* 87. *Bauh. J. iii. pars* ii. 212.
- Valeriana indica.* *Clus. hist.* ii. 54, *cop. in Park. theatr.* 122, *and repr. in*
- Valeriana mexicana.* *Ger. by Johns.* 1076.
4. *FEDIA coronata.* Calyx 6—12 fidus reticulatus, laciniis ovato-triangularibus.—Calyx sexfid to duodecemfid, reticulate; segments ovato-triangular. *Obs.* 3787. Specimen gathered in Paris garden.—*Obs.* 3788. Specimen in fr. gathered by Russel probably in a garden.—*Bot. mat. med.* i. 100. *Gaertn.* i. 37. t. 86. *Linn. a Roem. & Schult.* i. 363; *mant.* i. 267; *a Spreng.* i. 144. *Willd. enum.* i. 52. *Schrad. germ.* i. 96. *Bieb.* iii. 32. *Roth. enum.* i. 116. In corn near Gottingen.—*Bluff & Fing.* i. 48. Near Gottingen. *F. discoïdea.* *Vahl. enum.* ii. 21. *Willd. enum.* i. 52.
- Valerianella coronata.* *Link. enum.* i. 63. *Lam. & Dec.* iv. 241; *syn.* 297. *Dec. & Dub.* i. 253. *Host. fl.* i. 40. *Betch.* 17. t.
- Valerianella discoïdea.* *Lam. & Dec.* v. 493. *Dec. & Dub.* i. 253. *Betch.* 18. t.
- Valeriana coronata.* *Linn. a Willd.* i. 184. *Host. syn.* 22. *Hort. kew. ed. II.* i. 76. *Bieb.* i. 26. 415. *Schult. obs.* 12. Calyx sometimes with 12 teeth.
- Valeriana discoïdea.* *Linn. a Willd.* i. 184. *Sibth. prodr.* i. 22.

*Valeriana Locusta discoidea. Linn. sp. i. 48.*

*Valeriana. Ger. Lud. 219.*

*Valeriana petraea. Ger. by Johns. 1075, cop. in*

*Valeriana annua. Park. theatr. 121.*

*Bracteae* with a whitish membranaceous margin.  
*Capsules* turbinate, hirsute. *Obs.* 3787.—*Stem* dichotomous and glabrous above. *Germen* turbinate, hirsute. *Obs.* 3788.

### 38. OLAX.

*Calyx* cotyliformis integer. *Petala* 3—6, filamentis mediantibus connexa. *Stamina* 3, sterilibus 3 4 que interpositis. *Drupa* monosperma. *Obs.* 12625. The account of the fr. from *Gaertn. C. iii. 119. t. 201. Vahl. enum. i. 33. Brown, Rob. i. 357; ed. II. 213. Dec. prodr. i. 531. Roxb. ind. i. 168. L. Fissilia. Juss. 260.*

*O. zeylanica* is described and figured by *Gaertn. ii. 474. t. 179*, as having a trilocular polyspermous berry.

1. *OLAX scandens.* Ramulit eretes pubescentes. Folia dorso pubescentia.—Ramuli terete pubescent. Leaves pubescent on the back. *Obs.* 12625. Specimen from Wright gathered by Roxburgh in India.—*Roxb. ind. i. 168; cor. ii. t. 102.*

*Leaves* elliptic and ovali-elliptic obtuse and subobtusae; face pubescentulous. *Corymbi* axillary, pubescent, twice as long as the petioles. *Flowers* 3 tenths long, rufescent. *Corolla* infundibulate. *Petals* lanceolate lineari-lanceolate and oblong, unequal, mostly trinervose; ribs and veins longitudinal. *Stamina* 3, fertile, inserted towards the base of the petals. *Antherae* oblong, black; valves white. *Barren stamina* 3 and 4. *Filaments* similar to those of the fertile stamina. *Rudiments of the antherae* a brown knot crown'd by 2 erect linear membranaceous undulate segments.

### 39. CNEORUM.

*Calyx* tridentatus. *Petala* 3. *Drupa* tricocca.—

196 TRIANDRIA. 40. Polycnemum.

*Calyx* tridentate. *Petals* 3. *Drupe* tricoccous. *Obs.* 8619. *L.*

*Chamaelea*. *Tourn. inst. t.* 421.

1. CNEORUM *tricocum*. Flowers axillary. *Vahl.*  
—*Bot. mat. med.* i. 102. *Link. enum.* i. 62.

*C. tricoccon*. *Linn. a Willd.* i. 187 ; *a Roem. & Schult.* i. 549 ; *a Spreng.* i. 176. *Lam. & Dec.* iv. 615 ; *syn.* 364. *Dec. & Dub.* i. 114. *Vahl. enum.* ii. 34. *Schult. obs.* 13.

*Chamaelea tricoccos*. *Moench. marb.* i. 74.

*Branches* microscopically pubescent, olivecoloured. *Leaves* spatulato-linear, revolute at the margin, emarginate retuse and rounded, obsoletely cuspidate. *Drupe* tricoccous, brownish red ; flesh rather thin. *Nuts* 3, osseous, subrotundo-ovate, acute, with a prominence in the middle of the face, flattend between the prominence and the point, tawny, reticulately veind, with a line along the middle of the back and face ; parietes very thick, rufous within. *Tunic* so thick and hard, that I could not open it so as to observe the form of the nucleus, or the relative position of the perisperm and corculum. *Indusium* very thin, transparent. *Perisperm* white, granular ; granules large. *Corculum* strawcoloured white, granular, dicotyledonous ; granules middlesized, disposed in lines. *Cotyledons* linear, curvd. *Rostellum* linear. *Obs.* 8619.

40. POLYCNEMUM.

*Calyx* pentaphyllus triphyllus diphyllusque. *Corolla* nulla. *Stylus* brevissimus. *Stigmata* 2. *Capsula* membranacea monosperma.—*Calyx* pentaphyllous triphyllous and diphyllous. *Corolla* none. *Style* very short. *Stigmata* 2. *Capsule* membranaceous monospermous. *Obs.* 5713. *Juss.* 84. *L. a Schreb.* 33. *Gaertn.* ii. 211. *t.* 128. *L.*

1. POLYCNEMUM *arvense*. *Stamina* 3. *Phylla* 5. *Folia* subulata.—*Stamina* 3. *Phylla* 5. *Leaves* subulate. *Obs.* 5713. Specimen gatherd in Paris garden. —*Linn. sp.* i. 50 ; *a Willd.* i. 192 ; *a Roem. & Schult.* i. 523 ; *a Spreng.* i. 180 ; *hal.* 46. *Vahl. enum.* ii. 23.

*Hort. kew. ed. I. i. 56; ed. II. i. 79. Jacq. austr. iv. 34. t. 365. Gou. hort. 24; monsp. 387. Host. syn. 23; fl. i. 41. Roth. enum. i. 133; germ. i. 18; ii. pars i. 45; pars ii. 561. Reich. ii. 164. Sibth. prodr. i. 23. Willd. ber. 20. Schreb. lips. 39. Krock. i. 49. t. 7. Honck. i. 291. Schrad. germ. i. 97. Kunth. ber. 13. Gaertn. i. 211. t. 128. Horn. i. 48. Schult. obs. 13. Bieb. i. 190; ii. 459; iii. 184. Wallr. sched. 24. Lam. & Dec. iii. 398; syn. 198. Dec. & Dub. i. 395. Bluff & Fing. i. 50. Bess. enum. 4. Baumg. transylv. i. 59. Wahl. helv. 9. Thuill. 16. Link. enum. i. 62. Gmel. C. bad. i. 75. Pollin. i. 51. Polycnemon. Hall. hist. ii. 263.*

*P. Ger. Lud. 332. Sauv. 45. All. nic. 203.*

*Camphorata. Vaill. paris. 27.*

*Chenopodium annuum. Vaill. paris. 36. n. 11.*

*Chenopodium humifusum annuum, folio breviori et capillaceo. Seg. ver. i. 93. Tourn. inst. 506; paris. ed. II. ii. 306. Rupp. ab Hall. 339.*

*Chenopodium. Guett. ii. 14. n. 10.*

*Salsola. Dalib. 60.*

*Anthyllis lentifolia. Ger. J. 498, cop. from*

*Anthyllis altera italorum. Lob. obs. 221, which repr. in ic. i. 404, and Ger. by Johns. 623, and cop. in Dalech. ii. 1150, and*

*Camphoratae congener. Park. theatr. 568. Raii eur. 83, hist. i. 210. Magn. monsp. 47.*

*Flowers sessile, axillary. Bracteae 2, ensate, membranaceous, whitish, patulo-erect. Calyx membranaceous, shorter than the bracteae, whitish. Stigmata filiform, pubescent, recurvate. Capsule whitish brown. Seed reniformi-oval and lenticular, fuscous black, tuberculate, filling the capsule. Umbilical chord whitish, inserted at the emarginature at the side. Tunic opaque, atro-rufous, coriaceo-osseous. Indusium semitransparent, reticular; meshes roundish. Corculum dicotyledonous, nearly annular, terete, when dry whitish brown, when steepd white, very finely granular. Cotyledons 2, somewhat terete, parallel to the margin of the seed, one somewhat longer. Perisperm white,*

198 TRIANDRIA. 42. Hippocratea.

farinaceous, grumous, central, nearly surrounded by the corculum. *Rostellum* terete; granules disposed in lines.

41. COMOCLADIA.

*Calyx* triphyllus. *Corolla* tripetala. *Drupe* monosperma.—*Calyx* triphyllous. *Petala* 3, orbicularia. *Drupe* monospermous. *Obs.* 12627. The account of the fr. from *Jacq. amer.* 8vo. 15. *Dec. prodr.* ii. 65. *L.*

1. *COMOCLADIA integrifolia*. Foliola cordato-elliptica integerrima pubescentula.—Folioles cordato-elliptic, entire at the margin, pubescentulous. *Obs.* 12627. Specimen gathered by Wright in Jamaica.—*Bot. mat. med.* i. 103. *Linn. a Willd.* i. 187; *a Roem. & Schult.* i. 547; *a Spreng.* i. 176 but the folioles described as subcuneate at the base and glabrous on the back.—*Dec. prodr.* ii. 66. *Vahl. enum.* ii. 35. *Jacq. amer.* 8vo 14. *Swartz. obs.* 26. *Hort. kew. ed. II.* i. 78.

*Panicles* somewhat shorter than the leaves. *Flowers* unexpanded globose  $\frac{1}{2}$  tenth long. *Phylla* orbicular. *Petals* ovali-orbicular, twice as long as the phylla, coriaceous, with radiate veins. *Stamina* 3. *Germen* minute, surrounded at the base by a glandular nectarium. *Style* very short. *Stigma* simple.

42. HIPPOCRATEA.

*Calyx* quinquefidus. *Petala* 5. *Germen* tricoccum. *Capsula* trilocularis. *Semina* alata.—*Calyx* quinquefid. *Petals* 5. *Germen* tricoccous. *Capsule* trilocular. *Seeds* winged. *Obs.* 12627. The account of the fr. from *Swartz. obs.* 27 and *Roxb. ind.* i. 169. *Linn. a Roem. & Schult.* i. 347; *a Spreng.* i. 128. *Dec. prodr.* i. 567. *L.*

1. *HIPPOCRATEA eunymia*. Folia ovali-elliptica obtusiuscula glabra superne serrulata.—Leaves ovali-elliptic subobtusely glabrous serrulate above. *Obs.* 12627. Specimen from Wright gathered by Roxburgh in India.

*H. indica*. *Linn. sp. a Willd. i. 193. Roxb. ind. i. 169; cor. ii. t. 130.* A few flowers larger than the rest, probably fertile.

*H. disperma*. *Vahl. enum. ii. 28. Linn. a Roem. & Schult. i. 544.*

Glabrous. *Branches* terete; epidermis with approximate rufous lines composed of continuous granules. *Leaves* to  $1\frac{1}{2}$  inch long; serrations inflex. *Panicles* axillary and terminal, opposit, dichotomous filiform. *Bracteeae* ensate, opposit. *Flowers* minute, apparently barren. *Calyx* quinquepartite; segments triangular. *Petals* thrice as long as the calyx, ensatolanceolate, less than  $\frac{1}{4}$  tenth long, with a rufous streak along the middle composed of lines and spots. *Stamina* 3, apparently barren. *Pistil* as long as the calyx. *Germen* tricoccous. *Style* short. *Stigma* simple.

#### 43. CROCUS.

*Capsula* trilocularis. *Corolla* supera infundibuliformis, limbo sexpartito tubo brevior. *Calyx* nullus. *Stigmata* 3, dilatata.—*Capsule* trilocular. *Corolla* superior, infundibulate; limb quinquepartite, shorter than the tube. *Calyx* none. *Stigmata* 3, dilated. *Obs.* 7284. *L.*

1. *CROCUS latifolius*. *Bractea* floralis unica. *Stigmata* cuneata incisa. *Corollae* faux hirsuta. *Pedunculi* bracteati.—*Bractea* of the flower 1. *Stigmata* cuneate, incise. *Throat* of the corolla hirsute. *Peduncles* bracteate. *Obs.* 3624. Plants in fl. dug up by W. Bott in the Kings meadow under Nottingham castle 13 Apr. 1795, and which have been since cultivated for 3 years without any change.—*Obs.* 5638. In the same meadow, which being frequently flooded was probably never a garden, growing among the grass 2 or 3 roots together, in tracts of many yards extent, not in patches as *C. multifidus*. Going out of fl. 11 Apr. In fl. in a garden on 10 Mar. when the leaves an inch long.

*C. vernus*. *Wulf. ap. Jacq. austr. app. 47. t. 36. Linn. a Willd. i. 195; a Roem. & Schult. i. 367; a Spreng. i. 145. Willd. enum. i. 55. Hagenb. i. 27. Haw.*

*in hort. tr.* i. 133. *Hort. kew. ed.* II. i. 80. *Smith. brit.* i. 40; *engl.* i. 46. *Gunth. &c.* 8. *Vahl. enum.* ii. 46. *Lam. & Dec.* iii. 242; *syn.* 168. *Pollin.* i. 46. *Moench. marb.* i. 498. *Sibth. prodr.* i. 24. *Roth. catalect.* i. 1. *Bluff & Fing.* i. 51. *Wahl. carp.* 12; *helv.* 9. *Host. fl.* i. 42; *syn.* 24. In Littorali Friuli Carinthia and Carniola.—*Seb. & Maur.* 16. *Schrad. germ.* i. 98, whose descr. of the bracteae must have been made from *C. luteus*, to a fig. of which he refers.

*C. sativus.* *Linn. sp.* i. 50  $\beta$ ; *a Murr.* 83  $\beta$  *Bot. arr.* i. 38  $\beta$  *Scop. carn.* i. 37.

*C. officinalis*  $\beta$  *Huds.* 13. In meadows and pastures.

*C. biflorus.* *Mill. Ph. dict. n.* 4.

*C. Hall. hist.* ii. 127. *n.* 1257.

*Nat.* of Crete Cyprus Italy Carniola Hungary Bavaria Silesia the Alps and Pyrenees, and naturalised in Nottinghamshire and Staffordshire in the valley of the Trent.

$\alpha$  *purpurascens.* Corolla whitish purple; 3 inner segments with purple lines. *Obs.* 3324.

*C. vernus.* *Engl. bot. t.* 344.

*C. vernalis caeruleus.* *Deering. cat.* 61. A little below Fox lane in the Clayfield, and in Nottingham meadows on the right hand side of the road going to the Kings meadows, from roots possibly carried out with manure.

*Leaves* when the seeds ripe  $3\frac{1}{2}$  tenths of an inch broad. *Corolla*, outer segments from  $1\frac{1}{2}$  to 2 inches long. *Obs.* 5633.

$\beta$  *purpureus.* Limb of the corolla purple; 3 outer segments lanceolato-elliptic. *Obs.* 7284. In a garden. 3 Apr.

*C. vernus latifolius.* *Raii eur.* 109.

*C. vernus latifolius*, flore purpureo minore. *Bauh. J.* ii. 641. figures marked I. II; on Mount Thuyri near Geneva, and at Bormio in the Grisons.—*Raii hist.* ii. 1174. In mountainous pastures near Coire in the Grisons, on the summit of Mount Jura, and in fields and pastures about Rome.

*C. vernus purpureus minor.* *Park. pgrud.* 164.

**Purple Crocus.** *Hill, Brian, trav.* 24. Between Cozensa and Castel Luce in Calabria.

*Bulb* orbicular, covered with scales the bases of last years stipulae; scales ovate, rufous, multinervose; ribs approximate, anastomosing, reticulate above. *Stem* ascending, to a foot long. *Leaves* from 3 to 5, verticillate, 2 lines broad, the green sides twice as broad as the white costa,  $4\frac{1}{2}$  inches long reckoning from the surface of the ground. *Stipulae* mostly 4, vaginant, membranaceous, dilated upwards, whitish, mostly equal in number to that of the leaves, imbricate, the lower obtuse, the upper subacute. *Bractee of the peduncles* 2, membranaceous, 3 inches long, opposit; *outer bractea* vaginant, dilated upwards, inclosing 2 peduncles, unequally cloven at the mouth; segments triangular, acute, unequal; *inner bractea* canaliculate, acute, investing the inner peduncle and germen. *Peduncles* angular, 3 inches long, white. *Flowers* to 8 inches long. *Bractea of the flower* membranaceous, whitish, multinervose, vaginant, magistiform above, striate, acute, inserted into the end of the peduncle, nearly as long as the tube of the corolla, inclosing the unexpanded flower, bursting on one side; mouth oblique; ribs numerous, greenish. *Corolla* 7 inches long; tube terete subangulate solid gradually dilated upwards, whitish, above the end of the bractea purple with white striae; limb purple, with a lanceolate streak of deeper purple at the base of each segment; segments, the 3 outer rather acute,  $1\frac{1}{2}$  to  $2\frac{1}{2}$  inches long, the 3 inner nearly 3 tenths of an inch shorter, whitish purple with purple lines on the inside, purple without. *Stamina* erect. *Filaments* glabrous, white. *Antherae* sagittate, 1 and  $1\frac{1}{2}$  as long as the filaments, orange and yellow. *Germen* linear, subattenuate, triquetrous, subcompressd yellowish white, nearly  $\frac{1}{2}$  inch long. *Style* terete, incrassate at the end, white yellow and orange at the end. *Stigmata* convolute, plicate, yellow and orange, extending beyond the stamina, reaching to near the end of the inner segments of the corolla, when gently rubbd smelling like saffron; papillae yellow, inserted into the margin.



7 *obtusus*. Limb of the corolla purple, segments elliptico-oval. *Obs.* 7283. In Highfield garden. 2 Apr.

*C. vernus*. *Mart. T. rust. i. t.* 59. In Battersea meadow.

Broad leaved *C.* of the spring with a purple fl. *Mill. Ph. dict. var.* 2.

*Leaves* 5 inches long, reckoning from the surface of the ground, 3 tenths of an inch broad. *Corolla*, limb purple; segments with a stripe of deeper purple at the base, the 3 outer from 1 inch 5 to 1 inch 8 long, sometimes whitish purple, the 3 inner on the face whitish with purple lines, on the back purple with whitish lines. *Antherae* yellow. *Stigmata* orangecoloured. These plants Mrs. Thomas informd me produced flowers the preceding autumn, but the leaves appeared in the spring at the same time with the flowers.

8 *violaceus*. Corolla bluish violet purple, the inner segments just perceptibly lineate. *Obs.* 3323. In a garden. 1 Mar.

Broadleaved spring *C.* with a violetcoloured fl. *Mill. Ph. dict. var.* 3.

*C. Boerh.* ii. 119. n. 13. *Clus. hisp.* 263, inner fig. *repr. in*

*C. vernus latifolius albo flore. Clus. hist. i.* 203, inner fig. *and*

*C. vernus flore albo. Ger. by Johns.* 153, inner fig.

*C. sylvestris vernalis prior. Dod.* 214, outer fig.

*C. vernus purpuro-violaceus. Lob. obs.* 68, *and ic.* i. 140.

*Root* tuberous, roundish, deprest, white within, of a firm granular texture; granules floating in water added to a thin slice, minute and very numerous, the water looking like milk. *Leaves* 2 to 2½ tenths of an inch broad, shooting up with the flowers, when the seed vessel ripe 3½ and 4 tenths of an inch broad. *Stigmata* cuneate, submultifid; segments papillose at the end. *Peduncle of the fruit* terete pentagonal, gradually thickening from the base, ascending, 8 inches long, 5 inches long above the ground, white, brittle, semitransparent; angles acute, unequal; sides canaliculate; a transverse section forming a beautiful

object in the microscope. *Bractee* 2, membranaceous, ensiformi-triangular, semiamplexicaul, contiguous at the base, shorter than the capsule, one adpressed the other deflex. *Capsule* trilocular, trivalve, ovali-elliptic, at first whitish, after bursting tripartite, fulvous,  $\frac{1}{2}$  inch long; valves ovate, recurvate, septiferous. *Seeds* roundish, pinkish rufous, one tenth of an inch long, microscopically pubescent, from about 6 to 8, in 2 rows in each cell. *Hilum* orbicular, rugose, with a chorazal cord running along one side of the seed to the end. *Perisperm* globular, carnosio-corneous, white within; texture firm, tough, granuloso-grumous, when prest between glasses not altered, nor dilated, when cut into very thin slices appearing in the microscope as if composed of round and parallelipedal opaque grumes in a semitransparent mass. *Corculum* lanceolato-oblong, strawcoloured, when prest between glasses not shewing any granules, one fourth of the length of the nucleus, situated in the perisperm in a line between the 2 prominences, near the smaller prominence, with a cavity on one side. When germination takes place the rostellum shoots downwards to several times the length of the seed, at the end of which shoot a bulb appears, from the lower end of which bulb radicles shoot downwards, while from the upper end of the bulb a leaf shoots upwards. This shoot is covered by a rind of the same colour. The central part is whitish fleshy and juicy near the seed, but becomes ferruginous, and less juicy towards the bulb, appearing like a bractea at the base of the bulb. The tough perisperm becomes fleshy brittle and juicy, consisting of granules and a colourless fluid.

\* *striatus*. Corolla purple with whitish purple streaks.

*Obs.* 7286. In a garden. 5 Apr.—*Obs.* 12239.

Broad leaved purple variegated spring C. *Mill. Ph. dict. var.* 1.

C. vernus purpureus varicolor. *Park. parad.* 165.

C. vernus latifolius, flore purpureo. *Ger. by Johns.* 156, *cop. in*

C. vernus latifolius. *Bauh. J. ii.* 843, *and*

C. vernus flavus. *Park. parad. t.* 163. *f.* 10, (the name and descr. belonging to C. luteus,) *repr. from*

*C. vernus latifolius purpureus.* *Clus. hist.* i. 205.  
(*Bauh. J.* ii. 642. No fig. *Rati hist.* ii. 1174, and

*C. Boerh.* ii. 119. *n.* 11, is the same variety, without the whitish streaks.)

*Leaves* from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  at length on 27th Apr.  $4\frac{1}{2}$  tenths of an inch broad. *Corolla*, segments obovato-oblong, 2 inches long, from 8 tenths of an inch to 1 inch broad, with streaks of deeper purple at the base. *Stigmata* whitish, the segments tingd yellow from adherent pollen, cyathine from the approximate margins.

♂ *lacteus.* Corolla milky white. *Obs.* 5632. Gatherd 5 Apr. 1798 in the Kings meadow under Nottingham castle. A single plant. Planted in the garden. Going out of flower 7 Apr. 1800. *Obs.* 6604.

*Croci.* *Dod.* 215, *cop. in*

*C. vernus albus.* *Bauh. J.* ii. 642, inner fig. repr. in *C. autumnalis.* *Ger. by Johns.* 154.

♂ *albus.* Corolla white, at the base of the limb bluish violet purple. *Obs.* 2681. In a garden. 11 Mar. Spring *C.* *Mill. Ph. dict. var.* 4.

*C. Boerh.* ii. 19. *Rati hist.* ii. 1173. *n.* 2. *Clus. hisp.* 263, *outer fig. repr. in*

*Crocum vernum latifolium, albo flore.* *Clus. hist.* i. 203, *outer fig.*

*C. sylvestris vernus tertius.* *Lob. obs.* 68\* ; *ic.* i. 140.

*C. sylvestris vernalis prior.* *Dod.* 214, *inner fig. and*

*C. vernus flore albo.* *Ger. by Johns.* 153, *outer fig. and cop. in*

*C. vernus albus minor.* *Park. parad.* 161. *t.* 163. *f.* 1.

*C. sylvestris montanus.* *Lob. ic.* i. 140, *repr. in*

*Crocum vernum latifolium, purpureo flore.* *Clus. hist.* i. 203,

*C. sylvestris vernalis alter.* *Dod.* 214 *and*

*C. vernus flore purpureo.* *Ger. by Johns.* 153.

*Leaves* linear, during winter sometimes just appearing above ground, sometimes covered by the mould, on the melting of a 3 weeks snow about an inch above ground, patulous. 26 Jan. 1802 ; when fully grown and the ends dieing 9 inches long, reckoning from the

surface of the ground, and  $1\frac{1}{2}$  tenth of an inch broad; the face with a white stripe along the middle, equal in breadth to the green borders on each side of it. 3 Apr. when fully grown 12 and 15 inches long. 26 Apr.—*Stipulae* 6, greenish, striate, the outer gradually shorter, one third shorter than the tube of the corolla, sheathing the scapus and leaves. *Scapus* solitary, uniflorous, from 6 to 7 inches long, just longer than the leaves. *Corolla* infundibulate; limb violet-purple, quinquepartite, shining at the base; segments oblongo-lanceolate, concave, subattenuate below, patulous, 3 outer rather obtuse, 3 inner acute. *Style* orangecoloured, erect and inclinate, shorter than the corolla, mostly extended beyond the stamina. *Stigmata* 3, with from 9 to 17 branches; primary branches canaliculate, with mostly 9 terminal segments, primarily trifid and quadrifid, upwards dichotomous and trifid; segments cuneate, convolute at the margin, 1 and  $1\frac{1}{2}$  of a tenth broad. *Flowers* which have been in blossom about 3 weeks just faded. 18 Sept. 14 Oct. *Obs.* 3399.

*Nat.* of Caucasus Crimea Greece Italy Piedmont and the Pyrenees, in England naturalised near Nottingham Halifax and Sheffield, probably the outcast of gardens.

β? *vittatus* (Variation) *Corolla* purple with stripes of paler purple. *Obs.* 12239.

*Corolla*, segments oblong,  $1\frac{1}{2}$  inch long. *Antherae* extending beyond the stigmata. *Stigmata* reddish orange. Will probably prove a distinct species.

2. **CROCUS multifidus.** *Bractea floralis unica. Stigmata multifida. Folia floribus delapsis erumpentia.*—*Floral bractea* 1. *Stigmata* multifid. Leaves appearing after the flowers are faded. *Obs.* 3399. Gatherd by Mr. Ordoyno in meadows near Nottingham. 18 Sept.—*Obs.* 5275. Dug up by G. Bott in meadows on the banks of the Trent near Nottingham. 9 Oct.—*Obs.* 5631. In the upper meadow under Nottingham castle, seldom flooded, in round patches about a yard in diameter, scarcely any other plants growing between them. There are haystacks not many furlongs from the place where they grow. 11 Apr.—*Obs.* 11726.

A flower gatherd 25 Sept. in Trentham garden from roots dug up by Mr. Butt in a hilly pasture at Wolstanton near Newcastle in Staffordshire a mile from the Trent.—*Obs.* 12240. Specimen of a flower in Mrs. M. Stovins herbarium, gatherd in a meadow between Norton and Sheffield, in the same valley with Sheffield nursery.—*Obs.* 12239. Specimens of corollae with adherent bracteeae gatherd by Mr. Baker on the mountains of Castel a mare and Vico near Naples. 10 Feb?—*Lam. & Dec.* iii. 242; *syn.* 168. *Dec. & Dub.* i. 453.

*C. nudiflorus.* *Linn. a Roem. & Schult.* 369; *a Spreng.* i. 146. *Vahl. enum.* ii. 46. *Smith. brit.* i. 41, found by Wood near Halifax in Yorkshire; *engl.* i. 47. *Haw. in hort. tr.* i. 138. *Hort. kew. ed. II.* i. 82. *Ord.* 19. *Gray* ii. 195. *Sibth. prodr.* i. 28. On Mount Athos. Sept. and Oct.—*Pollin.* i. 47.

*C. autumnalis.* *Mill. Ph. dict. n.* 2.

*C. speciosus.* *Bieb.* i. 27; iii. 36. 646.

*C. medius.* *Gay en bullet. univ.* xi. 372.

*C. serotinus.* *Bot. mag. t.* 1267, much resembles it, but the stigmata have fewer branches.

*C. Boerh.* ii. 120. *n.* 26.

*Crocum pyrenaicum autumnale.* *Clus. app. alt.* 13.

No fig.

*Crocum.* *Clus. hisp.* i. 265, *repr. in*

*Crocum montanum I.* *Clus. hist.* i. 209,

*C. sylvestris autumnalis.* *Dod.* 214,

*C. montanus autumnalis.* *Lob. obs.* 69; *ic.* i. 138, and *Ger. by Johns.* 153, and *cop. in Bauh. J.* ii. 646, is figured with a projecting stigma.—*Park. parad. t.* 169. *f.* 4.

*Bulb* roundish, depressed, whitish within, with lateral terete shoots. *Roots* whitish filiform flexuose from the base of the bulb; *scales*, the permanent bases of the stipulae, pale rufous, multinervose; ribs parallel, approximate, finer than those of *C. luteus* and *latifolius*.

3. **CROCUS luteus.** Bracteeae florales 2. Stigmata cuneata incisa. Corollae faux glabra. Pedunculi ebracteati.—Bracteeae of the flower 2. Stigmata cuneate incise. Throat of the corolla glabrous. Peduncles

ebracteate. *Obs.* 2659. In a garden.—*Linn. a Roem. & Schult.* i. 368; *a Spreng.* i. 146. *Link. enum.* i. 49.

*C. aureus.* *Sibth. prodr.* i. 24.

*C. flavus.* *Hall. hist.* ii. 127, under *n.* 1257. Gathered by J. Gesner.

*C. floribundus.* *Haw. in hort. tr.* i. 123.

*C. maesiacus.* *Hort. kew. ed. II.* i. 81. *Willd. enum.* i. 55. *Bot. mag. t.* 1111. Corolla creamcoloured.

*C. vernus.* *Bot. mag. t.* 45. *Ehrh. in tracts* 270. *Mill. dict. n.* 3. Spring *C.* var. 8.

*C. sativus.* *Walc. t.*

*C. Boerh.* ii. 118. *n.* 3.

*C. vernus luteus.* *Park. parad.* 166. *n.* 22. *t.* 169. *f.* 1.

*Crocum vernum*, flavo flore, species prior. *Clus. paun.* 226. No fig.

*Crocum vernum latifolium*, aureo flore. *Clus. hist.* i. 206. No fig.

*Roots* subrotund; outer coat rufous, nervose; ribs longitudinal, approximate. *Stem* ascending, to 8 inches long. *Leaves* mostly 2 to each flower, lanceolato-linear,  $1\frac{1}{2}$  and 2 tenths broad, scarcely distinguishable from those of *C. latifolius*. *Stipulae* membranaceous, vaginant, numerous, investing the leaves and flowers, similar to those of *C. latifolius*. *Flowers* 2 to 5, surrounded by leaves. *Peduncles* uniflorous, acutely angular, dilated, as long as and half as long as the flowers. *Bractees of the flowers* opposit, membranaceous, whitish, nervose, somewhat shorter than the tube of the corolla; outer bractea vaginant, terete, attenuate above, inserted a little below the end of the peduncle; mouth oblique; inner bractea ensate, as long as and somewhat shorter, semiamplexicaul, inserted into the end of the peduncle. *Germen* linear, triquetrous, comprest, somewhat broader than the peduncle, yellowish whitish, with 6 purplish lines. *Corolla* infundibulate; tube as broad as the germen, as long as the peduncle, widening upwards, thrice as long as the limb, white and strawcoloured, with purple stripes at the angles above; limb quinquepartite, cyathine, bright deep yellow, glaucous at the base on the outside; segments concave cuneate at the base; the 3 outer oval-oblong, with bluish livid stripes along the middle on

the outside, to near the end, to  $1\frac{1}{2}$  inch long; the 3 inner obovato-oblong, somewhat broader and shorter. *Stamina* yellow, inserted into the base of the outer segments of the corolla; extending beyond the stigma. *Filaments* linear, slightly attenuate, angular, pubescentulous; hairs horizontal, filiform, acute, short; *vas nutiens* 1. *Antherae* sagittate, emarginate, patulous. *Pollen* yellow, globose, large, with a number of smaller angular granules. *Pistil* not reaching quite to the end of the stamina. *Style* filiform, yellow above, tubular; *vasa deferentia* 3. *Stigmata* 3, plicate, laterally convolute, yellow; margin oblique, pubescent with filiform hairs, to which pollen adherent; *vasa deferentia* numerous, uniting below into the 3 *vasa deferentia* of the style. I cannot learn that it produces seed in this country.

*Nat. of Romelia.*

*β lineatus* (Variation) Corolla yellow, with purplish brown stripes. *Obs.* 11724. Specimen gathered in a garden.

*C. vernus.* *Mill. Ph. dict. n.* 3. Spring *C.* var. 10.

*C. reticulatus* *α Bieb. i.* 28.

*C. susianus.* *Bot. mag. t.* 652. Cloth of gold.

*C. sulphureus.* *Bot. mag. t.* 938. Old cloth of gold.

—*Bot. mag. t.* 1384. Selfcoloured old cloth of gold.

*C. Boerh. ii.* 118. *n.* 2.

*Crocum.* *Clus. pann.* 227, described 228. *n.* 11, *repr. in*

*Crocum vernum latifolium, flavo flore.* *Clus. hist. i.* 205, *and*

*C. vernus, flore luteo.* *Ger. by Johns.* 153, *and cop. in*

*C. vernus latifolius, aureo flore.* *Bauh. J. ii.* 644.

(The names and descriptions belonging to *α*)

*Crocum vernum latifolium, flavo vario flore.* *Clus. hist. i.* 206, *repr. in*

*C. vernus latifolius, flore flavo.* *Ger. by Johns.* 155, *and cop. in*

*Croci verni latifolii flavi vario flore 1 et 2 species.* *Bauh. J. ii.* 644.

*C. vernus flavus striatus.* *Park. parad.* 166. (*t.* 163. *f.* 10, is a copy of *Clus. hist. i.* 205. *f.* 2 which is a variety of *C. latifolius.*)

*Leaves*  $1\frac{1}{2}$  tenth of an inch broad. *Corolla*, limb  $1\frac{1}{2}$  inch long.

7 *flavidus*. *Corolla* tawny yellow. *Obs.* 11725. In a garden.

*C. reticulatus*  $\beta$  *Bieb.* i. 28.

*C. sulphureus*. *Hort. kew. ed. II.* i. 81. *Linn. a Roem. & Schult.* i. 368; *a Spreng.* i. 146.

*C. Boerh.* ii. 218. n. 5.

*Crocum vernum latifolium*, pallido flore. *Clus. hist.* i. 206. No fig.

*Leaves* linear-lanceolate, 2 tenths of an inch broad.

*Corolla*, segments lanceolato-oblong, to 12 tenths of an inch long. *Stigmata*, margin flexuose, papillose; papillae cylindric, rounded at the end.

8 *vittatus*. Segments of the corolla lanceolate, the 3 outer purplish brown with orange stripes and margins, the 3 inner orange with a brown stripe at the base. *Obs.* 12241. In Handsworth nursery.

*Corolla* limb 1 inch 2 tenths long. *Antherae* yellow, polliniferous. *Style* and *stigma* orange, extended beyond the stamina.

9 *abortivus* (Variation) *Corolla* pale yellow with purplish brown stripes. *Obs.* 3322. In a garden.

*C. Boerh.* ii. 118. n. 4.

*Bulb* scales levigate, rufous, shining. *Bractee of the flower* 2. *Corolla*, limb 7 tenths to an inch long. *Antherae* whitish. *Pollen* none. *Pistil* extending beyond the stamina. *Stigmata*, hairs at the margin filiform, patent. No pollen adherent.

4. **CROCUS** *pendulus*. *Bractee* florales 2. *Folia* basi ciliata. *Stigmata* exerta pendula.—*Floral bractee* 2. *Leaves* ciliate at the base. *Stigmata* projecting, pendant. *Obs.* 3405.

*C. setifolius*. *Bot. mat. med.* i. 104.

*C. officinalis*. *Pers. ench.* i. 40. *Mart. rust. t.* 58. *Honck.* ii. 273.

*C. sativus*. *Linn. a Murr.* 83 a; *a Willd.* i. 194; *a Roem. & Schult.* i. 369; *a Spreng.* i. 146. *Willd. enum.* i. 54. *Lam. & Dec.* iii. 241; *syn.* 168. *Vahl. enum.* ii. 45. *Schrad. germ.* i. 99. *Schult. obs.* 18.



- Harkn. kew. ed. II. i. 81. Pollin. i. 46. Cultivated.—Smith. engl. i. 46. Dav. 5. On waste ground near Holyhead.—Woodv. in cycl. x. n. 3. Bluff & Fing. i. 51. Hall. hist. ii. 127. Merr. 31. Cultivated in Cambridgeshire and Essex.*
- C. autumnalis. Rath. catalect. i. 1.*
- C. genuinus. How. 33. Cultivated in fields.*
- C. Trag. 763, repr. in Cord. fol. 163. p. 2. Stap. 687. Dalech. ii. 1582. Bauh cant. 41. Kram. 11. In the gardens of cottagers.*
- Safran. Pom. i. 77. t.*

*Root* orbicular, umbilicate, whitish, within white, throwing out from 4 to 8 lateral stems; 1 inch 4 tenths broad, 7 tenths of an inch long. *Lateral shoots* erect, subrecurvate with whitish vaginant stipulae. *Leaves* subulato-linear, patulous, from 6 to 8, green, glabrous on the upper surface, subrecurvate,  $\frac{1}{2}$  the tenth of an inch broad, ciliate at the base; margin revolute, villosulose; villose hairs straight, very short; ciliate hairs short. *Scapus* solitary, erect, 6 inches long, bulbous at the base, with an ovate bulb seated in the umbilicus of the root. *Peduncle* terete, angular, an inch long. *Bractea* of the peduncle lanceolate, membranaceous, whitish,  $2\frac{1}{2}$  inches long, one twice as broad as the other. *Bractea* of the flower 2, lanceolate; membranaceous, whitish, tinged with purple above, erect, somewhat shorter than the corolla, the outer twice as broad as the inner. *Germen* subhexagonal, whitish, half as long as the peduncle; angles rufescent yellow. *Corolla* 5 inches long, erect; tube dilated at the end,  $3\frac{1}{2}$  inches long, yellowish below, purplish above; limb quinquepartite. *Filaments* whitish purplish, inserted into the end of the tube. *Antherae* sagittate at the base, yellow, as long as the filaments. *Style* filiform, orangecoloured, trifid from a little above the insertion of the stamina. *Stigmata* 3, reddish orange, dilated above, entire generally tubular towards the end, pendant between the segments of the corolla.

## 44. IXLIA.

*Capsula* trilocularis infera. *Corolla* infundibuliformis hypocrateriformisque. *Stigmata* filiformia.—

*Capstule* trilocular inferior. *Corolla* infundibulatè and hypocraterine. *Stigmata* filiform. *Obs.* 12463. *L.*

1. IXIA *Bulbocodium*. Folia linearia. Flores bracteis duplo longiores. Corollae tubus brevissimus. Filamenta pubescentia.—Leaves linear. Flowers twice as long as the bractee. Tube of the corolla very short. Filaments pubescent. *Obs.* 12461. Specimens with faded yellow corollae, gathered by Mr. Baker on the Appenines near Itri in the kingdom of Naples. 23 Mar.—*Obs.* 12462. Specimens in fl. and fr. gathered in Upton garden.—*Obs.* 12463. Specimen in fr. gathered by Broussonet in the south of France or north of Spain.—*Bot. mat. med.* i. 106. *Linn. vég.* 76; *a Roem. & Schult.* i. 373; *Willd. enum.* i. 55. *Link. enum.* i. 49. *Pers. ench.* i. 46. *Lois.* i. 28. *Thunb. cap. ed. I.* i. 218; *ed. II.* i. 55. *Schrad. germ.* i. 100. *Host. fl.* i. 44; *syn.* 24. *Lam. & Dec.* iii. 241; *syn.* 167. *Dec. & Dub.* i. 453. *Ferb.* 183. Near Rome.

*f. parviflora.* *Sal. R. hort.* 34. Found by Mr. Finlay in Jersey.

*Romulea Bulbocodium.* *Seb. & Maur.* 17.

*Trichonema Bulbocodium.* *Hort. kew. ed. II.* i. 62.

*Linn. a Spreng.* i. 149. *Smith engl.* i. 48.

*Trichonema parviflorum.* *Gray ii.* 195.

*Stem* to 11 inches long, with from 1 to 3 flowers. *Leaves* broader than the stem, from  $\frac{1}{3}$  to  $\frac{3}{4}$  of a tenth broad, curv'd, the upper extended beyond the stem. *Flowers* on scapi and pedunculate. *Peduncles* axillary and terminal; axillary peduncles solitary; terminal peduncles solitary and in pairs. *Bractee* lanceolate, nervose; the lower green, the upper membranaceous, reticulate, with minute brown spots; spots linear and sometimes orbicular, often composed of a chain of oval granules. *Corolla* an inch long; tube a tenth of an inch long, filiform; segments purple, yellowish at the base, lanceolate, acute trifid with lateral patulous veins crossing obliquely the lateral ribs. *Stamina* more than twice as short as the corolla. *Style* half as long as the corolla, trifid. *Stigmata*

recurvato. *Capsules* obovate, semitransparent, half as long as the bracteae, polyspermous. *Seeds* roundish angular atrous. *Obs.* 12462.

2. *IXIA bulbifera*. Folia lanceolato-linearia canaliculata conduplicata apice contraria, basi bulbifera. Bracteae lacerae, laciniis superne setaceis.—Leaves lanceolato-linear canaliculate conduplicate, contrary at the end, bulbiferous at the base. Bracteae lacerate; segments setaceous above. *Obs.* 7477. 12661. Specimens gathered in M. Deutz's garden.—*Bot. mat. med.* i. 108. *Linn. veg.* 76; *a Murr.* 85; *a Willd.* i. 204; *a Roem. & Schult.* i. 398. *Vahl. enum.* ii. 72. *Willd. enum.* i. 56. *Link. enum.* i. 51. *Pers. ench.* i. 49. *Gawl.* 2. *Thunb. cap. ed. I.* i. 237; *ed. II.* 60. var. 3. *Sparaxis bulbifera*. *Hort. kew. ed. II.* i. 86. *Linn. a Spreng.* i. 149. *Ker irid.* 94. *Belemcanda bulbifera*. *Moench. marb.* ii. 214. Glabrous. *Stem* flexuose. *Leaves* in their folded state 2 tenths broad, multinervose; margin membranaceous shining whitish. *Spike* with 3 flowers, with 2 flowering branches below; flowering branches as long as the internodia, uniflorous. *Bulbs* ovate compressed,  $1\frac{1}{2}$  tenth long, composed of a follicle inclosing membranaceous sheaths containing a rufous cylindric nucleus. *Bracteae* 2, oblong, opposit, membranaceous whitish multinervose, with rufous lines and spots above; outer bractea trifid at the end; intermediate segment setaceo-ensate, much longer; inner bractea bifid at the end. *Corolla* 1 inch 1 tenth long, twice as long as the bracteae, yellowish with a tinge of pink, infundibulate; limb cyathine below; segments somewhat more than half as long as the limb.
3. *IXIA longiflora*. Folia lanceolato-linearia. Corollae lacinae lineares tubo ter longiores.—Leaves lanceolato-linear. Segments of the corolla linear, thrice as long as the tube. *Obs.* 12643. Specimen gathered by Mrs. Shore in Maresbrook garden.—*Berg. cap.* 7. *Hort. kew. ed. I.* i. 58. *Linn. a Willd.* i. 203. *Bot. mag. t.* 256. *Link. enum.* i. 52. *Gladiolus longiflorus*. *Thunb. ap. Linn. fl. suppl.*

96 ; a *Roem. & Schult.* i. 436. *Thunb. prodr.* 8 ;  
*cap. ed. I.* i. 207 ; *ed. II.* i. 51. *Vahl. enum.* ii. 111.  
*Willd. enum.* i. 60.

*Tritonia longiflora.* *Hort. kew. ed. II.* i. 91. *Linn.*  
*a Spreng.* i. 154. *Ker irid.* 115.

Glabrous. *Leaves* multinervose, 3 tenths broad ;  
margin nervate. *Scapus* with 3 spikes. *Spikes* 4  
inches long, corymbose. *Bracteae* 2, membranaceous,  
oblong, acute and bifid at the end, multinervose. *Co-*  
*rolla* 4 inches long ; tube somewhat dilated at the end ;  
segments trinervose along the middle ; lateral veins  
parallel and patulous. *Stamina* inserted into the upper  
part of the tube. *Style* trifid at the end. *Stigmata*  
recurvate, pubescent on the face.

4. *IXIA erecta.* *Folia* lineari-lanceolata. *Flores*  
spicati. *Corolla* hypocrateriformis, tubo filiformi brac-  
teis duplo-longiore, laciniis ovali-oblongis venosis.—  
*Leaves* lineari-lanceolate. *Flowers* spicate. *Corolla*  
hypocraterine ; tube filiform, twice as long as the  
bracteae ; segments ovali-oblong, veined. *Obs.* 8801.  
From Bautry garden.—*Obs.* 12657. Specimen gathered  
in Perryhill nursery.—*Berg. cap.* 5. *Thunb. prodr.*  
10 ; *cap. ed. I.* 239 ; *ed. II.* i. 61. *Linn. a Murr.* 85 ;  
*a Willd.* i. 204 ; *a Roem. & Schult.* i. 390 ; *a Spreng.*  
i. 157. *Vahl. enum.* ii. 65. *Willd. enum.* i. 56. *Link.*  
*enum.* i. 50. *Hort. kew. ed. II.* i. 88.

*I. polystachia.* *Linn. sp.* i. 51 ; *veg.* 76. *Hort. kew.*  
*ed. I.* i. 58. *Thunb. cap. ed. I.* i. 240 ; *ed. II.* i. 61.  
*Ornithogalum spicatum minus.* *Pluk. alm.* 272 ; *phyt.*  
*t.* 310. *f.* 1.

*Scapus* branched. *Spikes* secundose, erect and pa-  
tulous, pedunculate. *Peduncles* straight, filiform.  
*Rachis* flexuose. *Flowers* patent. *Involucra* alter-  
nately erect and patulous ; lower bractea entire, upper  
bractea bidentate. *Corolla* campanulate, white, without  
dots and spots ; segments concave ; lateral veins  
patulous from the costa. *Filaments* blue. *Style*  
purple. *Stigmata* purple, pubescent at the end. *Obs.*  
8801.—*Scapus* strict, to 30 inches long. *Leaves* quin-  
quenervose, nearly 2 tenths broad ; margin mostly

nervate. *Stachysium* a foot long, strict, with 3 spikes; lateral spikes patulous.

5. *IXIA maculata*. Folia lineari-lanceolata. Flores spicati. Corolla hypocrateriformis, tubo filiformi, laciniis lanceolato-oblongis, medio trinervosis.—Leaves lineari-lanceolata. Flowers spicate. Corolla hypocraterine; tube filiform; segments lanceolato-oblong, trinervose along the middle. *Obs.* 7478. Specimen gathered in Upton garden.—*Obs.* 2399. From Chapel Allerton garden.—*Linn. sp. ii.* 1664; *a Murr.* 85; *mant.* 320; *a Willd.* i. 205; *a Roem. & Schult.* i. 388; *a Spreng.* i. 156. *Vahl. enum.* ii. 64. *Willd. enum.* i. 55. *Thunb. prodr.* 10; *cap. ed. I.* i. 241; *ed. II.* i. 61. *Link. enum.* i. 51. *Hort. kew. ed. I.* i. 60; *ed. II.* i. 88.

*I. conica.* *Bot. mag. t.* 539.

*Scapus* strict, 7 to 11 inches long, with a knot at the insertion of a bractea between the middle and the end. *Spike* with 3 flowers. *Bracteae* 2 together, the lower semitrifid, the upper bifid, membranaceous, rufous with opaque lines and oval dots. *Corolla* with microscopic short strigose brown lines; tube somewhat shorter than the bracteae; limb more than twice as long as the tube; segments with a livid cuneate blotch at the base; blotches formed by microscopic black spots. *Obs.* 7478—*Spike* with 7 flowers. *Obs.* 2399.

- β. *viridiflora*. Tube of the corolla twice as long as the bracteae. *Obs.* 12648. Specimen gathered by Mrs. Shore in Maresbrook garden.—*Vahl. enum.* i. 64 δ

*I. viridiflora.* *Willd. enum.* i. 56. *Linn. a Roem. & Schult.* i. 389. *Horn. suppl.* 5.

- γ. *polystachia*. *Scapus* with several spikes. *Obs.* 12656. Specimen gathered in Upton garden.

*Terminal spike* 2 inches long; rachis flexuose, nearly 2 inches long. *Corolla*, segments oblong; ribs of the middle of the segments straight passing as it were across the lateral veins.

- δ. *IXIA squalida*. Folia lineari-lanceolata, scapo breviora. Corollae tubus inferne filiformis, bracteis duplo brevior, laciniis obovato-oblongae.—Leaves li-

neari-lanceolate, shorter than the scapus. Tube of the corolla filiform below, twice as short as the bracteae; segments obovato-oblong. *Obs.* 7026. Specimen gathered in Upton garden.—*Hort. kew. ed. I. i.* 61 *β* *Horn. i.* 51.

*Gladiolus lineatus.* *Bot. mag. t.* 487 is a variety with some of the petals emarginate which I have not seen.

*Leaves* straight, contrary glabrous trinervose, multinervose, 4 to 11 inches long; lateral ribs sometimes close to the margin. *Scapus* flexuose 15 inches long, nearly thrice as long as the leaves, with one joint about the middle. *Spike* 3 inches long, with 2 flowers. *Bracteae* 2, the outer tridentate, the inner bidentate. *Corolla*  $1\frac{1}{2}$  inch long; tube turbinate above; limb four times as long as the tube; segments trinervose along the middle, with patulous veins branching off from the lateral ribs. *Style* just shorter than the stamina. *Stigmata* 3, recurvate. Probably a variety of *I. erocata*.

7. *IXIA crocata.* Folia lineari-lanceolata scapo breviora. Corollae tubus filiformis bractearum longitudine; laciniae obovatae obovato-ellipticaeque, basi hyalinae.—Leaves lineari-lanceolate shorter than the scapus. Tube of the corolla filiform, as long as the bracteae; segments obovate and elliptico-obovate, transparent at the base. *Obs.* 6245, 12647. Specimen gathered in Upton garden.—*Bot. mat. med. i.* 108. *Vahl. enum. ii.* 73. *Linn. a Willd. i.* 205; *a Roem. & Schult. i.* 400. *Willd. enum. i.* 57. *Thunb. cap. ed. I. i.* 245; *ed. II. i.* 63.

*I. hyalina.* *Sal. R. hort.* 38.

*I. Milleri.* *Berg. cap.* 8.

*Tritonia crocata.* *Hort. kew. ed. II. i.* 92. *Link. enum. i.* 52. *Ker irid.* 120.

*Belemcanda fenestrata.* *Moench. marb. i.* 529.

Glabrous. *Leaves* scarcely nervate at the margin. *Spike* to 4 inches long. *Stigmata* 3, revolute, hirsute on the face. *Capsules* obovate, oligospermous; valves septiferous. *Seeds* subrotundo-lenticular, reticulate, shining, black.

8. *IXIA patens*. Scapus glaber, foliis longior. Folia lineari-lanceolata. Flores spicati. Bractea exterior trifida, interior bifida. Corollae laciniae oblongae tubo quater longiores. Stigmata antheras aequantia. —Scapus glabrous, longer than the leaves. Leaves lineari-lanceolate. Flowers spicate. Outer bractea trifid, inner bractea bifid. Segments of the corolla oblong, four times longer than the tube. Stigmata equalling the antherae. *Obs.* 7024. From Mayfield garden.—*Obs.* 7025. Specimen from Chapel Allerton garden.—*Hort. kew. ed. I.* i. 59; *ed. II.* i. 86. *Bot. mag. t.* 522. *Linn. a Willd.* i. 201; *a Roem. & Schult.* i. 897; *a Spreng.* i. 157. *Vahl. enum.* ii. 71. *Willd. enum.* i. 56.

*I. flaccida.* *Sal. R. hort.* 35.

*Leaves* contrary, very slightly bowed, with 3 principal ribs. *Scapus* nearly twice as long as the leaves, straight, terete, shining. *Spike* with 7 flowers; flowers alternat. *Peduncle* flexuose. *Bracteae* 2 to each flower, membranaceous, with brown minute oblong dots, nervose, those of the lower flowers shorter, those of the upper longer than the internodia; the outer with 3 ribs, semitrifid, the middle segment subulate and narrower than the lateral segments; lateral segments ensate; the inner bractea with 2 ribs; segments ensate. *Corolla*, tube filiform; limb when gathered some time erect twice and a quarter longer than the stamina; segments obsoletely retuse; veins longitudinal, the 3 middlemost the largest, with smaller between them. *Stamina* erect, inserted at the mouth of the tube. *Antherae* yellow. *Style* as long as the stamina. *Stigmata* 3, patent, slightly recurvate, pubescent at the end. *Obs.* 7024.—*Spike* with 4 flowers. *Bracteae* 2, the outer semitrifid, segments triangulari-subulate. *Corolla* twice and a half as long as the tube, as long again as the stamina. *Antherae* half as long again as the filaments, yellow. *Obs.* 7025.

#### 45. GLADIOLUS.

*Capsula* trilocularis, infera. *Corolla* sexpartita irregularis tubulosa recurvata.—*Capsule* trilocular, inferior. *Corolla* sexpartite irregular tubular recur-

vate. *Obs.* 3874. *Juss.* 58. *Vent. tabl. t. 4. f. 6.* *Vahl. enum.* ii. 77. *Tourn. t.* 190. *L.*

1. **GLADIOLUS telifer.** Folia lanceolato-linear. Corollae tubus limbo bracteisque longior; laciniae 3 inferiores macula rhomboïdea pedunculata.—Leaves lanceolato-linear. Tube of the corolla longer than the limb and bractee; 3 lower segments of the corolla with a pedunculate rhomboid spot. *Obs.* 8304. In Renishaw garden.—*Obs.* 12655. Specimen gathered in Upton garden.

*G. angustus.* *Linn. sp.* i. 53; *a Willd.* i. 219; *a Roem. & Schult.* i. 428; *a Spreng.* i. 151. *Vahl. enum.* ii. 103. *Thunb. prod.* 8; *cap. ed. I.* 205; *ed. II.* i. 51. *Hort. kew. ed. I.* i. 65; *ed. II.* i. 100. *Burm. N. cap.* 2 *a Ker irid.* 141.

*G. angustifolius.* *Sal. R. hort.* 40.

*G. foliis linearibus.* *Linn. cliff.* 20. *t. 6.*

*G. Roy.* 19. *n. 2.* *Boerh.* ii. 127. *n. 5.*

(*G. hastatus.* *Thunb. cap. ed. I.* i. 181; *ed. II.* i. 43 is described as having a corolla with a very short tube.)

Leaves 2 tenths broad; margins nervate. Spike geniculate, curvate, 7 inches long, secundose, with 4 flowers. Flowers alternat. Bractee 2 at the base of each flower, ensate; longer than the internodia, rolled in at the sides; the inner one third shorter. Corolla tubular; to  $3\frac{1}{4}$  inches long; tube brownish pink; limb cylindric, half as long as the tube, subbilabiate, sexpartite, yellowish white; lower segment the shortest, the rest gradually longer upwards, the 3 lower with a purple line expressing the figure of a dart with a deltoid head. Stigmata 3, recurvate, subclavate, compressd, pubescent on the face. *Obs.* 8304. In Renishaw garden. 11 June.

2. **GLADIOLUS tristis.** Leaves linear tetragonous quadrisulcate. Segments of the corolla nearly equal. *Hort. kew. ed. II.* i. 99; *ed. I.* i. 63. *Linn. sp.* i. 53; *a Murr.* 86; *a Willd.* i. 210; *a Roem. & Schult.* i. 411; *a Spreng.* i. 151. *Link. enum.* i. 53. *Willd. enum.* i. 58. *Vahl. enum.* ii. 84. *Thunb. prodr.* 8; *cap. ed. I.* i. 176; *ed. II.* i. 42. *Bbt. mag. t.* 272.



*Burm. N. cap.* 2. *Ker irid.* 196. *Pers. ench.* i. 43. *Sal. R. hort.* 40. Leaves sometimes ensate.

*G. africanus.* *Pluk. alm.* 170; *phyt. t.* 187. *f.* 4, but the leaves represented as flaccid.

Leaves glabrous, 2 tenths broad. *Spike* 8 inches long. *Corolla* infundibulate; segments acuminate. *Obs.* 12660. Specimen gathered in M. Deutz's garden.

3. **GLADIOLUS** *cardinalis*. Spicae secundosae. Corollae lacinae ellipticae, tubo bracteis ensatis brevior. — Spikes secundose. Segments of the corolla elliptic; tube shorter than the ensate bractee. *Obs.* 12644. Specimen from Maresbrook garden. — *Bot. mag. t.* 135. *Vahl. enum.* ii. 92, *cop. in Willd. enum.* i. 59. *Linn. a Roem. & Schult.* i. 420; *a Spreng.* i. 153. *Hort. kew. ed. II.* i. 102. *Reider* ii. 125. *t. Link. enum.* i. 54. *Ker irid.* 148.

4. **GLADIOLUS** *communis*. Folia linearia-lanceolata. Flores cernui secundi distichique. Corolla subringens, tubo bracteis brevior. — Leaves linear-lanceolate. Flowers cernuous secundose and distichous. Corolla subringent; tube shorter than the bractee. *Obs.* 12663. Specimen from Leske, probably gathered in Saxony. — *Obs.* 3874. 12645. In fr. — *Bot. mat. med.* i. 110. *Linn. a Willd.* i. 213. *Vahl. enum.* ii. 90.

*a parviflorus.* Flowers secundose, an inch long. *Obs.* 12663.

*G. communis.* *Willd. enum.* i. 59. *Lam. & Dec.* iii. 240; v. 329; *syn.* 167. *Dec. & Dub.* i. 452. *Lois.* i. 28  $\beta$  *Seb. & Maur.* 19. *Asso* 4. *Spreng. hal.* 21. *Gmel. C. bad.* i. 77. *Baumg. transylv.* i. 61. *Honck.* i. 289. *Host. fl.* i. 44. *Schrad. germ.* i. 101. *Sibth. prodr.* i. 25. *Jacq. vind.* 9. *Pollin.* i. 47. *Moench. marb.* i. 527. *Bieb.* i. 29; iii. 38. *Schult. obs.* 14. *Roth. germ.* ii. *pars* i. 44; *enum.* i. 28. *Bluff & Fing.* i. 52.

*G. segetum.* *Hort. kew. ed. II.* i. 102. *Smith in cycl.* xvi. n. 28. *Linn. a Roem. & Schult.* i. 419.

*G. Hall. hist.* ii. 130. *Kram.* 12. *Ger. Lud.* 144. *Dod. flor.* 162, *cop. in Stap.* 709, and *repr. in*

*G. narbonensis.* *Lob. obs.* 52 & *ic.* i. 98.

*G. italicus.* *Ger. J.* 95.

*G. sive Xiphion*. *Rati eur.* 134. About Montpelier and Leghorn.

*Scapus* 2 feet long. *Leaves* contrary, ensate, quinquenervose,  $\frac{1}{4}$  inch broad; margin nervate. *Spike* 2 inches long.

$\beta$  *distichus* (Variation of *a*) Flowers distichous. *Obs.* 8013. *Bot. mat. med.* :

*G. italicus*. *Lob. obs.* 52, *repr. in ic.* i. 99 and *cop. in*

*G. narbonensis*. *Ger. J.* 95, and

*G. Stap.* 710.

*Leaves* as those of *a* *Scapus* 16 inches long. *Spike* 4 inches long. *Flowers* somewhat longer than the bracteeae.

$\gamma$  *rubenti-grandiflorus*. Flowers secundose. Corolla 2 inches long, purplish pink; lowermost segment broader than the adjoining segments. *Obs.* 3874. *Bot. mat. med.*  $\beta$  whose synonyms, the last excepted, belong to *a*

*G. byzantinus*. *Bieb.* iii. 40. In Iberia and Crimea.

—*Ker irid.* 143. *Hort. kew. ed. II.* i. 102. *Linn.*

*a* *Roem. & Schult.* i. 417; *a* *Spreng.* i. 153. (*Smith in cycl.* xvi. n. 26, is characterised as having a corolla with the 3 lower segments equal.)

*G. communis*. *Thunb. prodr.* 8; *cap.* i. 174.

*G. Linn. ups.* 16.

*Leaves* to 20 inches long, to 9 tenths broad; ribs 10; margin nervate. *Spike* interrupted, to  $1\frac{1}{4}$  foot long, curvd, angularly flexuose; internodia angular, shorter than the flowers. *Bracteeae* 2 to each flower, ensate, conduplicate, gradually shorter upwards, embracing the germen; the inner one third and one half as long as the outer. *Germen* trilocular, oblong, hexagonal, with 6 green lines. *Corolla* irregular, infundibulate; tube longer than the germen, geniculate, terete and striate below, purplish rufous and turbinate above, greenish white; limb horizontal, quinquepartite, purplish pink; segments spatulate, unequal, incumbent, emarginate, with a cuspis in the emarginature; the 3 upper horizontal, more deeply divided, ovali-spatulate, incumbent, the uppermost  $7\frac{1}{4}$  tenths of an inch broad; the 2 lateral upper segments  $6\frac{1}{4}$  broad, with a purple streak; the 3 lower spatulate, narrower, slightly re-

curvate; the lowermost  $3\frac{1}{2}$  broad, with a whitish linear streak in the middle with a purple border; the 2 lateral of the 3 lower segments somewhat shorter than the lower segment,  $3\frac{1}{2}$  broad with a lanceolate white streak in the middle with a purple border. *Stamina* equal, inserted into the tube of the corolla, the lowermost at the base of the lowermost segment, the 2 upper opposit to the 2 upper commissures. *Filaments* sulcate at the base on the inner side. *Antherae* linear, nearly as long as the filaments, purplish fuscous, all 3 parallel, under the 3 upper segments of the corolla; cells opening opposit to the 3 lower segments. *Pollen* strawcoloured white, elliptic, when moistend globose. *Style* filiform as long as the stamina, canaliculate above, trifid. *Stigmata* oval, conduplicate; margin undulate, with oval glands. *Vessels* of the style and stigmata 4, ramifying in the stigmata. What some of the latest observers have called species will probably prove varieties. *Obs.* 3874.—*Spike* interrupted strict, 8 inches long. *Capsules* obovate, shorter than the internodia. *Seeds* numerous, ovali-ovate, arillate, rufous, a tenth long. *Arilli* oval, vesicular reticulate, compressd, semitransparent, to 3 tenths long. *Corculum* in the center of the perisperm, white, terete. *Perisperm* rather horny granular whitish.

*incarnato-grandiflorus*. *Bot. mat. med.* 7  
G. flore pallido. *Ger. J.* 96.

5. *GLADIOLUS marginatus*. Folia lanceolata marginata nervata. Spica disticha. Corolla decurvata, tubo filiformi, laciniis ellipticis medio trinerviis. Stigmata bifida.—Leaves lanceolate; margin nervate. Spike distichous. Corolla decurvate; tube filiform; segments elliptic, trinervose in the middle. Stigmata bifid. *Obs.* 12658. Specimen gathered in Upton garden.—*Linn. fl. suppl.* 95; *a Willd.* i. 217; *a Roem. & Schult.* i. 429. *Thunb. prodr.* 8; *cap. ed. I.* i. 202; *ed. II.* i. 50. *Vahl. enum.* ii. 104. *Sal. R. hort.* 39.  
*Ixia marginata*. *Hort. kew. ed. I.* i. 59.  
*Watsonia marginata*. *Hort. kew. ed. II.* i. 94. *Linn. a Spreng.* i. 150. *Ker irid.* 125. *Pers. ench.* i. 49.

**Glabrous.** *Leaves* contrary, multinervose; laminae lanceolate, to 9 tenths broad, spinose at the end; marginal ribs nearly as broad as the costa. *Scapus* strict. *Spike* 6 inches long, interrupted below. *Involucra* adpressed, similar to those of the Gramina. *Bractea* 2, membranaceous, oblongo-ensate, nervose, the lower cuspidate; the upper bifid at the end, bicostate; segments arisate at the end. *Corolla* infundibulate, an inch long; segments alternately obtuse and acute; lateral veins patent from the lateral ribs. *Style* filiform, triramose; branches bifid recurvate. *Stigmata* filiform, pubescent along the face.

6. **GLADIOLUS securiger.** Folia spatulato-linearia. Corollae laciniae 3 superiores basi appendiculatae.—*Leaves* spatulato-linear. Three upper segments of the corolla with an appendage at the base. *Obs.* 7023. From Mayfield garden.—*Linn. a Willd.* i. 219; *a Roem. & Schult.* i. 435. *Vahl. enum.* ii. 109. *Willd. enum.* i. 60. *Hort. kew. ed. I.* i. 65. *Bot. mag. t.* 383. *Sal. R. hort.* 40.

*Tritonia securigera.* *Hort. kew. ed. II.* i. 91. *Link. enum.* i. 53. *Linn. a Spreng.* i. 154.

*Leaves* subacute, contrary, straight glabrous, distichous, one fourth shorter than and embracing the scapus at the base, trinervose. *Scapus* 10 inches long, flexuose, with a joint some way below the middle. *Spike* of 3 flowers; flowers distant. *Bractea* 2 at the base of each flower, opposit, embracing the germen, membranaceous, nervose, the outer obtuse, with a mucro in the middle, the inner bifid at the end. *Corolla* tawny orange, infundibulate, 1 inch 2 tenths long; tube dilated upwards, rather gibbous on one side; limb sexpartite, somewhat shorter than the tube; appendages at the base of the 3 upper segments quadrato-subrotund, yellow, vertical, contrary to the segments. *Stamina* 3, inserted into the lower part of the tube of the corolla, extending a little beyond the tube, inclining to the lower side of the throat. *Filaments* whitish, attenuate, angular. *Antherae* lanceolate, fuscous white, oblique. *Germen* inferior, turbinato-oblong, trigonous, trilocular; dissepiments inserted into the sides; cells

polyspermous. *Style* filiform, whitish. *Stigmata* 3, white, lanceolato-linear; sides folded together; margin pubescent.

7. **GLADIOLUS plicatus.** *Folia* plicata villosa lineari-lanceolata. *Bracteae* ternae.—Leaves plaited villose lineari-lanceolate. *Bracteae* in threes. *Obs.* 12651. Specimen gathered in Upton garden.—*Obs.* 12652. Specimen gathered in Upton garden, under the name of *Antholyza plicata*.—*Obs.* 12653. Specimen gathered in Upton garden under the name of *G. plicatus*?—*Obs.* 12654. Gathered in Upton garden under the name of *G. strictus*, out of fl.—*Linn. sp.* i. 53; *am.* vi. 113; *a Willd.* i. 221; *a Roem. & Schult.* i. 441. *Vahl. enum.* ii. 116. *Willd. enum.* i. 61. *Thunb. prodr.* 9; *cap. ed. I.* i. 211; *ed. II.* i. 53.

α (Variation) Tube of the corolla longer than the bracteae. *Obs.* 12652.

*G. plicatus.* *Hort. kew. ed. I.* i. 63.

*Babiana plicata.* *Linn. a Spreng.* i. 155. *Hort. kew. ed. II.* i. 105. *Ker irid.* 149.

Villose. *Leaves* trinervose, 3 to 7 inches long, 2 to 3½ tenths broad. *Petioles* linear membranaceous at the margin. *Scapus* flexuose. *Spike* interrupted with from 2 to 4 flowers, longer and shorter than the internodia. *Bracteae* ensate, erect, the 2 inner shorter than the outer. *Corolla* purple, to an inch long; segments lanceolato-oblong, rounded and cuspidate, nervose, with microscopic fulvous lines and spots, with still more minute opaque dots interposed; texture granular; tube filiform below, cyathine above.

β (Variation) Tube of the corolla as long as and shorter than the bracteae. *Obs.* 12653. 12651.

*G. strictus.* *Hort. kew. ed. I.* i. 63.

*Babiana stricta.* *Linn. a Spreng.* i. 155. *Hort. kew. ed. II.* i. 105. *Ker irid.* 150.

#### 46. ANTHOLYZA.

*Capsula* trilocularis infera. *Corolla* tubulosa irregularis recurvata.—*Capsule* trilocular inferior; *Corolla* tubular irregular recurvate. *Obs.* 12646. *L.*

1. **ANTHOLYZA Cunonia.** *Corollae* laciniae tres

*inferiores minimae*.—Three lower segments of the corolla very small. *Obs.* 9441. In Highfield garden. 19 May.—*Obs.* 12646. Specimen gathered in Upton garden.—*Linn. sp.* i. 54; *mant.* 320; *a Murr.* 87; *a Willd.* i. 222, where the descr. of sp. pl. omitted. *a Roem. & Schult.* i. 447. *Willd. enum.* i. 61. *Vahl. enum.* ii. 121. *Gou. hort.* 545. *Hort. kew. ed. I.* i. 66, *Thunb. prodr.* 7; *cap. ed. I.* i. 165; *ed. II.* i. 39.

*Gladiolus Cunonia*. *Gaertn.* i. 31. t. 11. *Linn. a Spreng.* i. 152. *Hort. kew. ed. II.* i. 96. *Link. enum.* i. 96. *Ker irid.* 130. *Bot. mag. t.* 343. Stem and leaves coloured glaucous instead of green, and the corolla turned to brownish red.

*Gladiolus papilionaceus*. *Sal. R. hort.* 41.

*Leaves* lanceolato-linear, multinervose, green; margin nervate. *Bracteae* acute. *Corolla*  $2\frac{1}{4}$  inches long; segments lineate, 3 lowermost oblong, acuminate, the middlemost just sensibly shorter; lateral segments cuneate 2 to 4 times as long as the lower; the uppermost  $1\frac{1}{2}$  as long as the 2 preceding; segments obovate, cuspidate. The flowers have the habit of those of *Canna*.

2. *ANTHOLYZA Meriana*. *Corolla* infundibuliformis cernua. *Folia* lineari-lanceolata glabra.—*Corolla* infundibulate cernuous. *Leaves* lineari-lanceolate glabrous. *Obs.* 7479. Specimen gathered in Upton garden.—*Linn. sp.* i. 54; *mant.* 320; *a Murr.* 87. *Hort. kew. ed. I.* i. 67. *Bot. mag. t.* 418.

*Ixia Meriana*. *Link. enum.* i. 52.

*Gladiolus Merianus*. *Vahl. enum.* ii. 94. *Linn. a Willd.* i. 214; *a Roem. & Schult.* i. 422. *Thunb. prodr.* 7; *cap. ed. I.* i. 170; *ed. II.* i. 40. *Jacq. ic.* ii. t. 230.

*Gladiolus amoenus*. *Sal. R. hort.* 39.

*Watsonia Meriana*. *Hort. kew. ed. II.* i. 95. *Linn. a Spreng.* i. 150. *Bot. mag. t.* 1194. *Mill. ic. t.* 276.

Glabrous. *Leaves* lineari-lanceolate, multinervose; margin nervate. *Spike* 7 inches long. *Bracteae* in pairs, cuspidate, opposit, those of the lower part of the spike ensato-ovate, of the upper part oblong; lower-

most bractea of each pair acute; upper bractea bifid at the end; segments acute. *Corolla*  $2\frac{1}{2}$  inches long; tube double, the lowermost  $\frac{1}{4}$  inch long, the upper united to the lower by a geniculate flexure, gradually dilated, 1 inch long; limb quinquepartite; segments obovato-oblong, minutely cuspidate, multinervose, microscopically freckled with linear and oval ferruginous spots. *Stamina* about as long as the corolla. *Style* projecting, trifid; segments bifid.

3. *ANTHOLYZA aethiopica*. Foliorum laminae falcato-ensatae. Spica oblonga disticha.—Laminae of the leaves falcato-ensate. Spike oblong, distichous. *Obs.* 12659. Leaves gathered in Upton garden.—The account of the spike from authors.—*Linn. sp.* i. 54; *a Willd.* i. 222; *a Roem. & Schult.* i. 446; *a Spreng.* i. 157. *Vahl. enum.* ii. 121. *Willd. enum.* ii. 61. *Link. enum.* i. 54. *Hort. kew. ed. I.* i. 67; *ed. II.* i. 103. *Thunb. prodr.* 7; *cap. ed. I.* i. 163; *ed. II.* i. 38. *Hyacinthus africanus foliis colchici.* *Pluk. alm.* 187; *phyt. t.* 195. *f.* 2.

*Leaves* 8 and 9 tenths broad, acute at the margin, quinquenervose; with short transverse veins.

#### 47. ARISTEA.

*Capsula trilocularis infera.* *Corolla* sexpartita rotata. *Stigma* trilobum.—*Capsule* trilocular inferior. *Corolla* sexpartite rotate. *Stigma* trilobate. *Obs.* 8303. *Hort. kew. ed. I.* iii. 506; *ed. II.* i. 108. *Vahl. enum.* ii. 123.

1. *ARISTEA lacera*. Bractea lacerae.—Bractea lacerate. *Obs.* 8303. In Renishaw garden. 11 June. In fr. 18 Sept.

*A. cyanea.* *Hort. kew. ed. I.* i. 67; *ed. II.* i. 108. *Bot. mag. t.* 458. *Linn. a Willd.* i. 223; *a Roem. & Schult.* i. 448; *a Spreng.* i. 158. *Vahl. enum.* ii. 123. *Willd. enum.* i. 61. *Link. enum.* i. 55. *Gawl.* 6. *Ker irid.* 11.

*A. eriophora.* *Pers. ench.* i. 41.

*Moraea africana.* *Linn. a Murr.* 93. *Thunb. prodr.* 10; *cap. ed. I.* i. 264; *ed. II.* i. 68.

- Ixia africana*. Linn. *sp.* i. 51. *Burm. N. cap.* 1.  
*Müll. Ph. dict.* n. 2.  
*Ixia*. Roy. 10. *Burm. J. afr.* 191. t. 70. f. 2.  
*Gramen eriophoron*. *Pluk. mant.* 98; *phyt.* t. 299.  
 f. 5?

*Stem* ascending, 6 inches long, striate, slightly compressed, above terete. *Leaves* contrary, the uppermost ciliate at the base with flexuose long hairs. *Heads* 2 and 1, terminal, pedunculate. *Bractees* triangulari-ovate, ciliate, with long flexuose hairs. *Corolla* blue, contorted after flowering like that of *Iris*; segments incumbent at the base. *Capsule* triquetrous; angles projecting; sides deeply canaliculate; cells dispersed.

## 48. FERRARIA.

*Capsula* trilocularis infera. *Corolla* sexpartita, laciniis 3 exterioribus majoribus. *Filamenta* in tubum coacta. *Stigmata* 3, bifida.—*Capsule* trilocular inferior. *Corolla* sexpartite; 3 outer segments larger. *Filaments* united into a tube. *Stigmata* 3, bifid. *Obs.* 9501. *L.*

1. **FERRARIA** *Tigridia*. *Corollae* lacinae 3 interiores duplo breviores, sagittatae.—3 inner segments of the corolla twice as short as the 3 outer, sagittate. *Obs.* 9501. In a garden.

*F. pavonia*. *Bot. mat. med.* i. 110. *Willd. enum.* ii. 691. *Reider* i. 39. t.

*Tigridia Pavonia*. *Pers. ench.* i. 50. *Hort. kew. ed.*

*II.* iv. 137. *Ker irid.* 25. *Link. enum.* ii. 178.

*Linn. a Roem. & Schult.* i. 495; *a Spreng.* i. 169.

*Flower* pedunculate. *Germen* inferior, triquetrous, striate, shining. *Corolla* campanulate, opening from 7 to 8 in the morning, closing and falling off in the afternoon; segments patent, 3 outer elliptico-oblong, cuspidate, concave, tawny on the back, red yellow tawny and brownish crimson on the face; lower half concave, rather rigid, tawny at intervals with confluent oval dull purplish crimson blotches; upper half flaccid, at length pendulous, tawny orange at the base ver-



million red above; 3 inner segments contracted about the middle; lower half fuscous red, with a white stripe along the middle on the back above, ovate, orangecoloured with oval crimson spots. *Filaments* monadelphous, tubular, somewhat longer than the inner petals; tube trigonous, purplish red, containing a colourless liquid. *Antherae* 3, linear, sessile, fuscous black. *Pollen* dirty yellow. *Style* filiform, thickening upwards, purplish red, triramose. *Stigmata* filiform.

## 49. SISYRINCHIUM.

*Capsula* trilocularis, infera. *Corolla* sexpartita. *Filamenta* plerumque inferne coalita. *Stylus* trifidus. —*Capsula* trilocular inferior. *Corolla* sexpartite. *Filamenta* mostly united below. *Style* trifid. *Obs.* 3338. 7155. *L.*

Bermudiana. *Tourn. inst. t.* 208. *Gaertn. i.* 32. *t.* 11.

1. *Filaments united.*

- I. **SISYRINCHIUM graminifolium.** *Corollae* laciniae cuspidatae. *Caulis* alatus simplex, subnudus. *Pedunculi* bracteis breviores.—Segments of the corolla cuspidate. Stem winged, simple, nearly leafless. Peduncles shorter than the bractees. *Obs.* 7155. In Renishaw garden.—*Obs.* 10517. In Darley garden.—*Obs.* 5303. In Upton garden.

*S. gramineum.* *Bot. mag. t.* 464.

*S. Bermudiana.* *Linn. sp. ii.* 1353 *a Hort. kew. ed. I. iii.* 304. *Michaux ii.* 33.

*S. anceps.* *Linn. a Willd. iii.* 579; *a Roem. & Schult. i.* 493. *Hort. kew. ed. II. iv.* 135. *Willd. enum. ii.* 690. *Link. enum. ii.* 177. *Pers. ench. i.* 50. *Big. 256. Bart. phil. i.* 23. *Pursh. i.* 31.

Bermudiana graminea. *Gaertn. i.* 32. *t.* 11. *Moench. marb. ii.* 113.

*Marica* anceps. *Ker irid.* 22.

*S. Clayt. & Gron. ed. I.* 111; *ed. II.* 140. *Linn. ups.* 278.

Bermudiana. *Dill. hort. 49. t.* 41. *f.* 49.

*S. caeruleum.* *Pluk. alm.* 348; *phyt. t.* 61. *f.* 1.

*Root* fibrous. *Stem* with 2 opposit leafy borders, to 17 inches long, erect, 2 tenths and 1 and 2 thirds of

a tenth broad. *Branches* 3 and 2. *Leaves* contrary ensate, nervose; keel and opposit commissure decurrent; upper leaves 1 tenth and 2 thirds broad; floral leaves contrary at the end. *Corymbus* distichous, with 5 flowers, flowering upwards, one flower at a time. *Bracteae* membranaceous, ensate, bifid at the end. *Peduncles* filiform, glabrous. *Germen* obovate, after flowering becoming roundish; hairs filiform, straight, rounded at the end. *Corolla* blue, yellow at the base, rotate, quinquepartite, hirsutulous on the outside, segments oblongo-obcordate, with a mucro in the emarginature; mucro subulate, ciliate with minute hairs, the yellow spot at the base elliptic and trifid at the end. *Stamina* 3, yellow. *Filaments* united into a hollow cylinder, the ends only distinct. *Antherae* bilocular, oblong. *Pollen* ovali-elliptic. *Style* filiform, trifid at the end. *Stigmata* recurvate, glabrous. *Capsules* stil green, oval and obovato-oval; cells polyspermous. *Obs.* 10517.—*Capsules* globoso-oval, torose, atrous. *Seeds* roundish, one third of a tenth long, atrous. *Obs.* 5303.

2. *SISYRINCHIUM Bermudiana*. Corollae laciniae cuspidatae. Caulis alatus ramosus. Pedunculi bracteis longiores.—Stem winged branched. Peduncles longer than the bracteae. *Obs.* 6920. Specimen gathered in Edinburgh garden.—*Obs.* 6919. Specimen from Dr. Heise.—*Obs.* 12650. Specimen in fr. gathered in Schoenbrun garden.—*Linn. sp.* ii. 1353  $\beta$ ; *a Murr.* 820; *a Willd.* iii. 578; *a Roem. & Schult.* i. 492; *a Spreng.* i. 166. *Willd. enum.* ii. 690. *Hort. kew. ed.* II. iv. 135.

*S. bermudianum*. *Mill. Ph. dict. n.* 1. *Pers. ench.* i. 50.

*S. iridioides*. *Bot. mag. t.* 94.

*Marica bermudiana*. *Ker irid.* 21.

*Moraea bermudiana*. *Thunb. prodr.* 11; *cap. ed. I.* i. 266; *ed. II.* i. 69.

*S. bermudense*. *Pluk. alm.* 348; *phyt. t.* 61. *f.* 2, but the flower, probably from an imperfect specimen, represented with segments entire at the margin.

228 TRIANDRIA. 49. *Sisyrinchium*.

*Bermudiana*. *Dill. hort.* 48, t. 41, f. 48.

*Leaves* ensato-linear, the uppermost  $1\frac{1}{2}$  tenth broad. *Germen* oblongo-obovate, hirsutulous. *Corolla* blue,  $\frac{1}{2}$  inch long; segments oblongo-obcordate, microscopically hirsute at the margin; cusps ensate 4 times shorter than the breadth of the segments. *Stamina* half as long as the corolla. *Obs.* 6920.—*Capsules* oval, trilocular, trivalve, atrous,  $2\frac{1}{2}$  tenths long, olive brown and shining within; valves septiferous. *Seeds* roundish, slightly compressed, atrous, two thirds of a tenth long. *Obs.* 12650.

3. *SISYRINCHIUM striatum*. *Corollae* laciniae cuspidatae. *Caulis* alatus foliis angustior.—Segments of the corolla cuspidate. Stem winged, narrower than the leaves. *Obs.* 3338. In a garden. 18 Aug.—*Linn. a Willd.* iii. 580; *a Roem. & Schult.* i. 493; *a Spreng.* i. 167. *Willd. enum.* ii. 691. *Smith. pict.* t. 9. *Hort. kew. ed. II.* iv. 136. *Pers. ench.* i. 50.

*Maricastriata*. *Ker irid.* 21.

*Bermudiana striata*. *Moench. marb.* ii. 118.

*Ferraria ochroleuca*. *Sal. R. hort.* 42.

*Stem* erect, 30 inches long, compressed; wings very short. *Leaves* contrary, alternat, ensate, similar to those of *Iris Pseudacorus*, distichous, striate, slightly canaliculate, green at the first view, but sprinkled with a glaucous dew, to 7 tenths of an inch broad. *Flowers* fasciculate, numerous, erect, in interrupted racemi, flowering in succession. *Fasciculi* crowded. *Bracteae* membranaceous, whitish brown, solitary. *Corolla* superior, sexpartite, yellow below with a few purplish brown oval and lanceolate spots, whitish with a tinge of yellow above; segments retuse with a minute cusps, nervose with purplish brown lines; every other segment rather smaller, quinquenervose; the larger segments septemnervose. *Stamina* yellow, monadelphous below. *Pollen* globose. *Style* as long as the stamina, triramose; vasa deferentia 3, 1 from a little below each stigma. *Stigmata* simple. *Capsules* stil green trilocular, oval, torose, to 4 tenths long; cells polyspermous.

2. *Filaments distinct.*

4. *SISYRINCHIUM californicum*. Scapus alatus. Scapus winged. *Obs.* 10515. In Darley garden. 20 May.—*Obs.* 9545. In Trentham garden. 25 Sept.—*Hort. kew. ed. II.* iv. 135. *Linn. a Spreng.* i. 166. *Marica californica*. *Ker irid.* 21. *Bot. mag. t.* 983. *Linn. a Roem. & Schult.* i. 449, in which work the genus is arranged under Fl. inf. tho the capsule is described as inferior, copying an error in *Linn. a Willd.* i. 170.

*Leaves* ensate, vertical ; margins below membranaceous, brownish pink. *Scapus* linear, 11 inches long, about as long as the leaves. *Corolla* deeply quinquepartite; segments oval, obsoletely cuspidate, nervose, incumbent at the base ; ribs 9. *Stamina* shorter than the corolla, inserted into the receptacle. *Filaments* subulate, yellow, half as long as the germen. *Antherae* oblong, orangecoloured, thrice as long as the germen. *Germen* ovali-oblong, yellowish, after flowering triquetrous. *Style* triramose just above the base, shorter than the stamina ; branches filiform. *Stigmata* 3, simple. Paper in which recently dried specimens kept was stained pink.

50. MORAEA.

*Capsula* trilocularis infera. *Corolla* sexpartita rotata. *Stigmata* alata.—*Capsule* trilocular, inferior. *Corolla* sexpartite, rotate. *Stigmata* winged. *Obs.* 5802. 7541. *Linn. a Willd.* i. 240. *Thunb. cap. ed. II.* i. 67. *Pers. ench.* i. 49. *Gaertn.* i. 39. *t.* 13. *L.*

Forms the connecting link between *Ixia* and *Iris*.

1. *MORAEA guttata*. Caulis compressus. Panicula dichotoma.—Stem compressd. Panicle dichotomous. *Obs.* 7541. 10014. Seeds from Wright from Calcutta garden. *Bermudiana guttata*. *Bot. mat. med.* i. 109. *M. chinensis*. *Linn. a Roem. & Schult.* i. 455. *Willd. enum.* i. 67. *Vahl. enum.* ii. 159. *Roxb. ind.* i. 174. *Ferraria crocea*. *Sal. R. hort.* 41.

*Pardanthus chinensis*. *Linn. a Spreng.* i. 166. *Hort. kew. ed. II.* i. 123. *Ker irid.* 16. *Link. enum.* i. 55.  
*Ixia chinensis*. *Burm. N. ind.* 16. *Pers. ench.* i. 48.  
*Gaertn.* i. 40. *t.* 13.

*Stem* geniculato-flexuose. *Corolla*, segments quin-  
 quenervose along the middle with numerous lateral  
 veins. *Style* quadrifid; segments cuneato-linear,  
 alate. *Stigmata* simple, obtuse. *Obs.* 7541.—*Seeds*  
 baccate, subrotundo-obovate, somewhat shining, pur-  
 plish black, dotted. *Tunic* semitransparent, reddish  
 rufous, reticulate. *Indusium* opaque, thicker than the  
 tunic, composed of olivecolourd scariose laminae in-  
 termixd with a clammy blackish pulp. *Chalaza* orbic-  
 ular, at the end of the indusium, rufo-atrous, opaque.  
*Corculum* fusiform, embedded longitudinally in the  
 perisperm, strawcolourd, the base close to the hilum,  
 the end reaching a little beyond the center of the  
 perisperm, microscopically striate and tuberculate on  
 the outside, granular, when pressd between glasses  
 breaking into longitudinal fasciculi as the rostellum of  
 dicotyledonous plants; granules minute, indistinct,  
 disposed in lines. *Obs.* 10014.

### 51. IRIS.

*Capsula* trilocularis infera. *Corolla* infundibuli-  
 formis, limbo sexpartito, laciniis 3 exterioribus recurvis.  
*Stigmata* 3 bilabiata.—*Capsule* trilocular inferior.  
*Corolla* infundibulate; limb sexpartite; 3 outer seg-  
 ments recurvate. *Stigmata* 3, bilabiate. *Obs.* 3716.  
 10860. *Tourn. t.* 186—188. *Gaertn.* i. 38. *t.* 13. *L.*  
*Xiphion. Tourn. t.* 189.

1. *Corollae lacinae exteriores laeves glabrae*.—Outer  
 segments of the corolla levigate glabrous.
1. *IRIS persica*. *Corolla* glabra; lacinae interiores  
 brevissimae divaricatae. Folia conduplicata. Scapus  
 uniflorus.—*Corolla* glabrous; inner segments very  
 short divaricate. Leaves conduplicate. Scapus uni-  
 florous. *Obs.* 12665. Specimens gatherd in Robinsons  
 street garden.—*Linn. sp.* i. 59; *veg.* 79; *a Murr.* 91;  
*a Willd.* i. 235; *a Roem. & Schult.* i. 473; *a Spreng.*  
 i. 159. *Vahl. enum.* ii. 147. *Bot. mag. t.* 1. *Hort.*

*kew. ed. I. i. 74; ed. II. i. 121. Ker irid. 68. Gaertn. i. 39. t. 13.*

*Xiphion persicum. Tourn. inst. 363.*

*Xiphium persicum. Boerh. ii. 125.*

*I. bulbosa persica. Park. parad. 172. No fig.*

*I. bulbosa praecox minus odora persica variegata.*

*Mor. & Bob. ii. 357.*

*Leaves* multinervose, to  $\frac{1}{2}$  inch broad; margin submembranaceous, microscopically pubescent. *Corolla* infundibulate; tube slender; limb turbinate, shorter than the tube; inner segments spatulate dentate four times shorter than the outer segments. *Stigmata* somewhat shorter than the outer segments, dentate.

*Nat. of Persia.*

2. *IRIS Xiphium.* Germen trigonum angulis lateribusque sulcatis. Folia apice contraria. Corollae laciniae interiores lanceolatae, laciniae exteriores stigmata longitudine latitudineque subaequantes.—Germen trigonous; angles and sides sulcate. Leaves contrary at the end. Inner segments of the corolla lanceolate, outer segments nearly equal to the stigmata in length and breadth. *Obs. 3884.* In a garden. 3 July.—*Linn. sp. i. 58  $\beta$ ; a Willd. i. 231; a Roem. & Schult. i. 471; a Spreng. i. 159. Vahl. enum. ii. 143. Schult. obs. 14. Hort. kew. ed. I. i. 73  $\beta$ ; ed. II. i. 121. Willd. enum. i. 64. Link. enum. i. 60. Bot. mag. t. 686.*

*Xiphium vulgare. Mill. Ph. dict. n. 2.*

*I. bulbosa. Clus. hisp. 275, repr. in hist. i. 211, cop. in Dalech. ii. 1615, repr. in*

*I. bulbosa flore vario. Ger. by Johns. 100.*

*Hyacinthus poetarum hispanicus. Lob. obs. 48 and ic. i. 95.*

*I. angustifolia. Clus. hisp. 277, cop. in Dalech. ii. 1615, repr. in*

*Iridis bulbosae V semen. Clus. hist. i. 213,*

*Hyacinthus poetarum luteus semine in siliquis praeg-nans. Lob. obs. 49; ic. i. 96, and*

*I. bulbosa. Ger. by Johns. 101, outer fig. and abr. in Bauh. J. ii. 705 inner fig. In fr.—Bauh. J. ii. 704.*

*a caeruleo-purpurea.* Inner segments of the corolla purple, outer segments blue. *Obs. 3884.*

**I. bulbosa angustifolia purpura rubescens, labris caeruleis.** *Park. parad.* 178.

*Stem* solid, uniflorous, simple. *Leaves* ensate, canaliculate to near the end, striate; the upper surface scarious, shining, whitish; the flat end when cut thro transversely cavernous. *Flower* scentless. *Peduncle* subtrigonus, nearly as long as the floral leaves, nearly 4 inches long. *Germen* linear,  $3\frac{1}{4}$  as long and somewhat broader than the peduncle; sides with a longitudinal furrow. *Corolla* turbinate,  $2\frac{1}{4}$  inches long; tube turbinate, 4 times shorter than the germen; segments emarginate; staminiferous segments patent, nearly twice as long as the germen; unguis with a yellow stripe along the middle, extending to the middle of the lamina; sides bluish with curvd oblique purple lines; laminae rhombeo-obovate; interstamineous segments as long as the staminiferous, erect, lanceolato-oblong, subcanaliculate, deeply emarginate. *Antherae* linear, buffcoloured. *Pollen* yellow. *Stigmata* patent, slightly recurvate, purplish blue; upper lips serrate, lineate; lower lip very short, whitish, transversely linear, bipartite; lobes entire, with a convex margin.

**β flava.** *Corolla* yellow. *Obs.* 4910. Specimen gathered in Upton garden.

**I. bulbosa flavo flore.** *Clus. hist.* i. 212, repr. in

**I. bulbosa.** *Ger. by Johns.* 101, cop. in *Bauh. J.* ii. 705, outer fig. repr. in

*Hyacinthus poetarum luteus.* *Lob. ic.* i. 95, and the fl. cop. in

**I. bulbosa angustifolia africana.** *Park. parad.* 178. t. 175. f. 6.

**I. bulbosa angustifolia aurea.** *Park. parad.* 177.

**γ squalens.** *Corolla* of a dirty yellowish hue. *Obs.* 4911. Specimen gathered in Hammersmith nursery.

**I. bulbosa angustifolia altera obsoletior.** *Park. parad.* 178.

**δ caerulescenti-flava.** Interstamineous segments of the corolla bluish white with strawcoloured veins; stamineous segments yellow. *Obs.* 12334. In Broomhouse garden. 22 June.

**ε caeruleo-flava.** Interstamineous segments of the co-

rolla blue ; stamineous segments yellow. *Obs.* 12352. In Summershal garden. 3 July.

*I. bulbosa versicolor.* *Clus. hist.* i. 212, *repr. in Ger. by Johns.* 100, and a *fl. cop. in*

*I. bulbosa angustifolia versicolor.* *Park. parad. t.* 175. *f.* 5.

*I. bulbosa.* *Clus. hist.* i. 214, *repr. in*

*I. bulbosa flore cinereo.* *Ger. by Johns.* 102, and *cop. in*

*I. bulbosa versicolor.* *Bauh. J.* ii. 704.

*Flowers* faintly and delicately scented. *Germen* linear ; cells polyspermous ; seeds small, in two and three rows, crowded.

‡ *fuliginosa.* Interstamineous segments blackish purple ; stamineous segments olivaceous with an orange stripe along the middle. *Obs.* 12546. In Highfield garden. 30 June.

*Stigmata* olivaceous with a mixture of yellowish and smoky purple.

8. *IRIS cepifolia.* *Germen* triquetrum, lateribus canaliculatis. *Folia* apice fistulosa. *Corollae* laciniae interiores obovatae, laciniae exteriores stigmatibus duplo longiores latioresque, unguibus cuneatis.—*Germen* triquetrous ; sides canaliculate. *Leaves* fistular at the end. *Inner segments* of the corolla obovate ; *outer segments* twice as broad and long as the stigmata ; *ungues* cuneate. *Obs.* 3883. In a garden. 25 June.

*I. Xiphioïdes.* *Linn. a Willd.* i. 231 ; *a Roem. & Schult.* i. 472 ; *a Spreng.* i. 159. *Willd. enum.* i. 64. *Vahl. enum.* ii. 144. *Lam. & Dec.* iii. 238 ; *syn.* 167. *Dec. & Dub.* i. 452. *Lois.* i. 30. *Bot. mag. t.* 607. *Ker irid.* 66.

*I. Xiphium.* *Hort. kew. ed. I.* 73 *a Bot. arr.* i. 40. Found by Margt. Cavendish Dutchess of Portland on the side of the Avon near Fladbury in Worcestershire and in other parts of that county, according to Nashs Worcestershire,—but probably an outcast from Evesham gardens.

*Xiphium latifolium.* *Mill. Ph. dict. n.* 3.

*I. bulbosa pallida.* *Besl. Bas. aestiv. ordo* 3. *fol.* 4. *f.* 2.



*Hyacinthus. Lob. adv. 47. Ill done.—ic. i. 94, repr. from*

*I. bulbosa. Lob. obs. 48, which cop. in Dalech. ii. 1645, repr. in*

*Hyacinthus poetarum luteus. Lob. obs. 49,*

*I. bulbosa, violaceo flore. Clus. hist. i. 210, and*

*I. bulbosa anglica. Ger. by Johns. 99, and cop. in*

*I. bulbosa tota violacea. Bauh. J. ii. 703.*

*I. bulbosa major caerulea. Park. par. t. 175. f. 2.*

*a violacea. Corolla purplish violet. Obs. 3884. In a garden.*

*I. bulbosa major purpureo-violacea. Park. parad. 173.*

*Bulb* ovate. *Stem* biflorous, solid, simple, to 2½ feet long, erect. *Leaves* ensate, canaliculate to near the end, striate underneath, sheathing the stem below, deciduous; the upper surface of the channelld part scariose, shining, whitish; the end slightly compressd. *Flowers* scentless. *Peduncles* obsoletely trigonous. *Germen* lanceolate, as long as the peduncles; seeds in 2 rows, small, obovate. *Flowers* scentless. *Corolla* hypocraterine; tube terete below, cyathine above, solid, as long as the breadth of the germen; segments emarginate; outer segments horizontal, decurvate at the end; unguis canaliculate, whitish with minute blue spots along the middle; sides with obliquely curvd lines; laminae subrotund, purplish and violet, acutely and deeply emarginate, with a triangular whitish spot at the base with a linear yellow streak along the middle of it; inner segments patulo-erect; unguis cuneate, canaliculate. *Pollen* elliptic, large, intermixd with much smaller probably imperfect particles, when moistend becoming oval. *Stigmata* patulous, recurvate; lower lip whitish, transversely linear, bidentate; teeth triangular, acuminate. *Seeds* oblongo-oval, slightly curvd. *Tunic* rugose, rufo-fulvous, fungose, thick. *Indusium* semitransparent, fulvous. *Perisperm* ovato-oval, with transverse microscopic lines, whitish livid, when steepd whitish, carnosio-corneous, granular; granules oval, disposed in transverse lines proceeding from a line in the axis of the perisperm; granules elliptic. *Corculum* fusiformi-ovate, terete, lieing ob-

liquely in a cavity in the base of the perisperm, straw-coloured whitish, when steepd whitish, one third as long as the perisperm, half of a tenth long, granular; granules disposed in longitudinal lines.

β *albescens*. Laminae of the outer segments of the corolla bluish white, the rest of the corolla whitish purple.

*Obs.* 4907. In a garden.

*I. bulbosa* major flore cinereo. *Park. parad.* 173.

*Capsule* elliptic, nervose,  $2\frac{1}{4}$  inches long, levigate, glabrous, brownish tawny. *Seeds* oval, rufous, rugose,  $1\frac{1}{4}$  tenth of an inch long. *Perisperm* horny, livid near the surface, white in the middle, when cut into thin slices, white, appearing as if composed of nearly contiguous semitransparent granules in a transparent mass. *Corculum* oblong, straight, whitish, one fourth of the length of the perisperm, in a cavity of the perisperm, one end very near to the hilum, when pressed between glasses not shewing any granules.

γ *maculata*. Laminae of the outer segments of the corolla bluish with purple spots. *Obs.* 10063. In Birdholme garden near Chesterfield. 8 July.

δ *purpurascens*. Corolla purplish white with purple streaks and spots. *Obs.* 10570. From Miss Burrows garden. 18 July.

*Corolla* 3 inches long; laminae of the outer segments 2 inches broad.

ε *variegata*. Corolla purple; laminae of the outer segments white with purple spots. *Obs.* 5024. From Perryhill nursery.

*I. bulbosa* major, flore cinereo striato purpureo. *Park. parad.* 173. n. 3.

*I. bulbosa* major purpurea variegata. *Park. parad.* t. 175. f. 3.

*Stigmata* whitish purple with purple lines at the end.

4. *IRIS stricta*. Germen triquetrum. Corollae glabrae tubus germinis brevior. Folia linearia. Caulis teres fistulosus strictus latitudine foliorum.—Germen triquetrum. Corolla glabrous; tube shorter than the germen. Leaves linear. Stem terete, fistular; strict, as broad as the leaves. *Obs.* 7781. In Darley garden.

—*Obs.* 16972. Specimen from Baron Jacquin.—*Obs.* 636. In Sanson fields garden.—*Moench. marb.* i. 528. On Moiser mountain.

*I. sibirica.* *Linn. sp.* i. 57; *a Willd.* i. 237; *a Roem. & Schult.* i. 475; *a Spreng.* i. 160; *hal.* 21. *Bot. mag. t.* 50. *Hort. kew. ed. I.* i. 71; *ed. II.* i. 116. *Vahl. enum.* ii. 148. *Willd. ber.* 20; *enum.* i. 66. *Host. fl.* i. 48; *syn.* 27. *Poll.* i. 33. *Schrad. germ.* i. 107. *Honck.* i. 286. *Ker irid.* 51. *Jacq. vind.* 8; *austr. t.* 3. *Krock.* i. 55. *Lois.* i. 30. *Reich.* ii. 164. *Link. enum.* i. 59. *Schreb. lips.* 1. *Mill. Ph. dict. n.* 20. *Roth. enum.* i. 124; *germ.* i. 18; ii. *pars.* i. 43. *Schult. obs.* 15. *Bieb.* i. 33. *Gaertn.* i. 38. *t.* 13. *Gmel. C. bad.* i. 82. *Sut.* i. 24. *Schlecht. ber.* i. 26. *Kunth. ber.* 13. *Gunth. &c.* 9. *Bluff & Fing.* i. 56. *Baumg. transyl.* i. 64.

*I. pratensis.* *Lam. & Dec.* iii. 239; *syn.* 167. *Dec. & Dub.* i. 452. *Sal. R. hort.* 44. *Rupp. ab Hall.* 32.

*I. angustifolia.* *Sal. R. hort.* 44.

*I. Linn. ups.* 17. *n.* 4. *Kram.* 13. *n.* 6. *Hall. hist.* ii. 129. *n.* 1259.

*I. pratensis angustifolia non foetida.* *Boerh.* ii. 124. *Bauh. Casp. theatr.* 597, *cop. from*

*Iridis XI species prior.* *Clus. pann.* 253, *which repr. in*

*I. angustifolia II.* *Clus. hist.* i. 229, *and*

*I. sylvestris.* *Ger. by Johns.* 56, *and cop. in Ger. J.* 52, *and*

*I. tenuifolia.* *Bauh. J.* ii. 727. 728. upper fig.—*Cord. fol.* 133. *p.* 2. *c.* 42. No fig.

(*I. sylvestris.* *Lob. ic.* i. 69 is *I. foetida.*)

*Stem* to 2½ feet long, fistular throughout, with four flowers. *Leaves* contrary, of an herbaceous scent, 2 tenths broad. *Bracteae* scariose, tawny. *Peduncles* semiterete, without an articulation or nearly so. *Germs* nearly 5 times shorter than the peduncle; sides slightly convex, with a slight ridge in the middle. *Flowers* scentless. *Corolla*, tube 2½ tenths long; outer segments dirty strawcoloured, reticulated with brownish purple veins; inner segments violetcoloured. *Stigmata*

purplish violet; upper lip bipartite; segments incumbent, denticulate; lower lip triangular acute, twice as short as the upper. *Obs.* 7781.—*Stem* 3 feet long. *Corolla*, outer segments whitish, veined with blue, dirty yellow at the base. *Obs.* 636.

*Nat.* of Siberia Caucasus Hungary Germany Switzerland Dauphine and Alsace.

5. *IRIS graminea*. Germen hexagonum. Corolla glabra, tubo turbinato brevissimo. Caulis anceps, foliis brevior.—Germen hexagonal. Corolla glabrous; tube turbinate very short. Stem twoedged, shorter than the leaves. *Obs.* 2491. In the vicarage garden in Kidderminster.—*Obs.* 12700. Specimen from Baron Jacquin gathered in Austria.—*Obs.* 7780. In Darley garden. June.—*Obs.* 9920. In Baslow garden. In fr. 24 July.—*Linn. sp.* i. 58; *mant.* 320; *a Murr.* 91; *a Willd.* i. 236; *a Roem. & Schult.* i. 476; *a Spreng.* i. 160. *Bot. mag. t.* 681. *Willd. enum.* i. 66. *Schräd. germ.* i. 109. *Vahl. enum.* i. 149. *Link. enum.* i. 59. *Sut.* ii. 386. *Jacq. austr. t.* 2. *Hort. kew. ed. I.* i. 73; *ed. II.* i. 116. *Host. syn.* 27; *fl.* i. 47. *Scop. carn.* i. 39. *Lam. & Dec.* iii. 239; *syn.* 167. *Dec. & Dub.* i. 452. *Lois.* i. 30. *Pollin.* i. 49. *Ker irid.* 50. *Bluff & Fing.* i. 56. *Baumg. transylv.* i. 64. *Krock.* i. 56. *Sibth. prodr.* i. 27. *Bauh. J.* ii. 727.  
*I. compressa.* *Moench. marb.* i. 529.  
*I. Linn. ups.* 17. n. 6. *Clus. hist.* i. 230, *repr. in Chamaeiris.* *Dod.* 247,  
*I. perpusilla.* *Lob. obs.* 34,  
*Chamaeoxiris.* *Lob. ic.* i. 69,  
*Chamaeiris tenuifolia.* *Ger. by Johns.* 56, *imit. in Ger. J.* 52, and  
*I. angustifolia prunum redolens minor.* *Bauh. Casp. theatr.* 603, and *cop. in Chamaeiris angustifolia minor.* *Park. parad.* 187. t. 185. f. 5 and  
*I. angustifolia.* *Bauh. J.* ii. 728, (The name and descr. belonging to *I.* of *Lob. adv.* 479.)  
*Root* tuberous. *Stem* compressd, to 22 inches long. *Leaves* contrary, lanceolato-linear, striate, when rubbed shining, grass green, extending to 5 and 10 inches

beyond the stem, 3 to  $4\frac{1}{2}$  tenths of an inch broad; margins microscopically membranaceous and serrulate. *Flowers* 2. *Peduncles* trigono-terete, shorter than the floral leaves. *Germen* elliptic, sexsulcate, one and  $2\frac{1}{2}$  times shorter than their peduncles; sulci acutely angular, those opposit the inner segments of the corolla deeper and wider; ridges acute. *Corolla* hypocraterine; tube cyathine green, rugoso-striate, nectariferous, half as long as the germen; inner segments lanceolato-elliptic, mostly emarginate, erect, purple; unguis canaliculate; outer segments oblong, somewhat longer than the inner, horizontal; unguis oblong, yellow along the middle; the sides brownish purple with purple curved lines; laminae ovate, narrower than the unguis, whitish with purplish violet lines. *Filaments* lineari-subulate, fleshcoloured. *Antherae* linear, somewhat shorter. *Pollen* yellow, elliptic, when moistened globose. *Stigmata* fleshcoloured, carinate on the face; carina purple; upper lip purple; lower lip transversely linear; very short, bidentate and sometimes tridentate; lateral teeth setaceous; intermediate tooth triangular. *Obs.* 7780.—Stem compressd solid. *Leaves* green,  $2\frac{1}{2}$  to  $4\frac{1}{2}$  tenths broad. *Peduncles* obsoletely trigonous. *Capsule* pedunculate, terminal, stil green, trilocular, elliptico-oval, 1 inch 3 tenths long; sides rather concave; angles acutely and deeply sulcate; cells polyspermous. *Seeds* inserted into the inner angle of the cells. *Obs.* 9920.

*Nat.* of Transylvania the south of Germany Piedmont and of the sea coast of France between Rochelle and Rochfort.

6. *IRIS Pseudacorus*. Corolla glabra; laciniae interiores stigmatibus breviores, exteriores obovatae.—Corolla glabrous; inner segments shorter than the stigmata; outer segments obovate. *Obs.* 1836. *Bot. mat. med.* i. 115. *Linn. suec.* 13; a *Willd.* i. 232; a *Roem. & Schult.* i. 466; a *Spreng.* i. 160; *hal.* 21. *Schrad. germ.* i. 106. *Scop. carn.* i. 38. *Host. syn.* 26; *fl.* i. 47. *Lam. & Dec.* iii. 237; *syn.* 167. *Dec. & Dub.* i. 452. *Lois.* i. 29. *Gou. hort.* 26; *monsp.* 9. *Pollin.* i. 49. *Retz. scand.* 14. *Seb. & Maur.* 19. *Bieb.*

i. 31. *Baumg. transyl.* i. 63. *Roth. germ.* i. 17; ii. *pars.* i. 43; *enum.* i. 124. *Schult. obs.* 15. *Asso* 5. *Willd. ber.* 20; *enum.* i. 64. *Wahl. helv.* 9; *ups.* 14; *succ.* i. 21. *Poll.* i. 32. *Gmel. C. bad.* i. 80. *Lightf.* i. 86; ii. 1078. *Hook. scot.* i. 16. *Smith. engl.* i. 48. *Kunth. ber.* 13. *Schlect. ber.* i. 25. *Bluff & Fing.* i. 55. *Wib.* 88. *Engl. bot. t.* 578.

*I. Hall. hist.* ii. 129. n. 1260.

*Pseudo Iris palustris.* *Beal. Bas. vern. ordo* 8. *fol.* 7. *f.* 3.

*I. palustris.* *Moench. barb.* i. 528. *Ger. J.* 106, *cop. in* *Acorus.* *Bauh. Casp. theatr.* 633. *Lob. obs.* 21. *repr. in ic.* i. 58, *and*

*Pseudoiris.* *Dod. flor.* 159.

*Leaves* contrary. *Germs* twice as long as the tube of the corolla.

*Nat.* of Europe from the south to Lapland. All over Anglesey.

7. *IRIS foetida.* Corolla glabra; tubus germinis brevior; laciniae spatulatae, interiores stigmata subaequant. Caulis uniangulatus.—Corolla glabrous, segments spatulate, the inner about as long as the stigmata. Stem with one angle. *Obs.* 12012. Specimen gathered in the hedge of a dry meadow a few miles south of Worcester.—*Obs.* 12011. Specimen gathered by Mr. Stokes in a garden in Eckington in Worcestershire from a root dug up in Comberton rough.—*Obs.* 9972. Gathered by Mrs. Stokes in woods and hedges about Torquay in Devonshire where very plentiful, in fr. in Dec.—*Obs.* 12013. Specimen gathered by Davies on Priestholm island, where abundant.—*Bot. mat. med.* i. 116. *Linn. a Murr.* 90. *Sal. R. hort.* 44. *Thuill.* 18. *Pers. ench.* i. 52. *Gray.* ii. 196.

*I. foetidissima.* *Linn. a Willd.* i. 232; *a Roem. & Schult.* i. 467; *a Spreng.* i. 160. In Spain.—*Vahl. enum.* ii. 139. *Willd. enum.* i. 64. *Smith. engl.* i. 49. *Gou. hort.* 26, in hedges; *monsp.* 9. *Lam. & Dec.* iii. 238; v. 328; *syn.* 167. *Dec. & Dub.* i. 452. Corolla blackish purple.—*Lois.* i. 80. Corolla sometimes dirty yellow.—*Pollin.* i. 49. *Seb. & Maur.* 19. *Bott. arr. ed. IV.* Found by Withering in the

· south west counties on hedge banks.—*Engl. bot. t.*  
 · 596. *Host. fl.* i. 47. *Bieb.* i. 32. *Link. enum.* i.  
 · 59. *Honck.* i. 284. In Holland and near Dantsie.—  
 · *Huds.* 14. Near Hornsey.—*Relh. ed. I.* 15. *Sibth.*  
 · *prodr.* i. 27. *Abb.* 9. *Moench. marb.* ii. 213. *Dav.*  
 · 6. *Turn. & Dillw.* i. ii. 2—666, where at p. 196. l. 1  
 · for in read all the S. W. counties.—*Ker irid.* 50.  
 · *Winch &c.* i. 4. At Jolby in Durham.—*Purt.* i. 61.  
 · Alne hills near Henley in Warwickshire.

I. *Ger. Lud.* 145. n. 4.

· *Spatula foetida.* *Besl. Bas. vern. ord.* 8. *fol.* 8. *f.* 1.

· *Xyris.* *Ger. J.* 53, *cop. in*

*Gladiolus.* *Bauh. Casp. theatr.* 559. 564, *cop. with*  
*the root elongated, from*

· *Xyris.* *Dalech.* ii. 1392. *Rati hist.* ii. 1190. On sand  
 hills on the sea shore at Montpellier; *cant.* 192.  
 · *Sibb.* ii. 55. *Merr.* 126. *Lob. obs.* 37, *repr. in Ger.*  
 · *by Johns.* 60, and *cop. in Park. theatr.* 256. The  
 stem in fl. *cop. in*

*Xyris annosa.* *Stap.* 713.

*Xyris juvena.* *Stap.* 713 *abr. from Fuchs.*

· *Stem* with 5 flowers. *Leaves* contrary, falcato-lan-  
 ceolate from 2 tenths to an inch broad, multinervose.  
 · *Flowers* alternat, the uppermost extending beyond  
 and even with the leaves. *Corolla* 2 inches long; tube  
 oblongo-turbinate; outer segments thrice as long as  
 the germen; inner segments  $2\frac{1}{2}$  as long as the germen.  
*Stigmata* twice as long as the germen. *Obs.* 12013.  
 12011.—*Capsules* trivalve, 2 inches long. *Dissepiments*  
 inserted into the valves. *Seeds* obovato-subrotund,  
 in 2 rows, occasionally slightly flattend on the  
 upper and lower sides, glabrous. *Tunic* orangecoloured,  
 reticulate, semitransparent, with a parenchyma inter-  
 posed between it and the indusium. *Parenchyma*  
 white, nearly  $\frac{1}{2}$  tenth thick, apparently composed of  
 crowded vesicles. *Indusium* tawny, semitransparent,  
 granular, connected to the tunic by a membrane which  
 passes across the base of the parenchyma of the tunic;  
 granules roundish and oval. *Chalaza* orbicular, brown-  
 ish tawny. *Perisperm* obovate, cartilaginous, bluish  
 white, as if composed of pellucid colourless vesicles

disposed in lines radiating from the center of a pellucid mass. *Corculum* ovali-ovate elliptico-oval and oval, when steepd ovali-ovate, embedded in the base of the perisperm, almost close to the hilum,  $\frac{1}{4}$  of a tenth long, 6 times shorter than the perisperm, pointing to one side of the center of the perisperm, soft, of a uniform texture, granular; granules contiguous, minute, disposed in lines parallel to those of the perisperm. The grumes expressed by pressure between glasses amorphous, brownish white. *Obs.* 8972.

*Nat.* of Iberia Romelia Italy Provence Languedoc Dauphine Bresse Orleanois isle de France, the maritime counties of England from Cornwall and Somersetshire to Norfolk, in the interior of Middlesex Hertfordshire Cambridgeshire Bedfordshire Buckinghamshire Oxfordshire, the south of Worcestershire; Warwickshire Leicestershire Denbighshire Anglesey Yorkshire Durham and Scotland. Does it merit the name of a semimaritim plant.

$\beta$  *variegata*. Leaves with strawcoloured stripes. *Obs.* 5332. *Bot. mat. med.*  $\beta$  *Weston.* iii. 419 *var.* 2.

8. *IRIS luteo-alba*. Germen hexagonum. Folia ensata. Caulis subcompressus. Corollae tubus germine longior, laciniae exteriores spatulatae, interiores cuneato-oblongae.—Germen hexagonal. Leaves ensate. Stem compressd. Tube of the corolla longer than the germen; outer segments spatulate; inner segments cuneato-oblong. *Obs.* 10056. In the garden of Jonathan Skey of Bewdley in Worcestershire. 29 June.—*Obs.* 7807. In Darley garden. 12 July.

*I. ochroleuca*. *Linn. mant.* 175; *a Murr.* 90; *a Willd.* i. 233; *a Roem. & Schult.* i. 469, but in the last the stigmata described as twice as short as the inner segments of the corolla.—*Vahl. enum.* ii. 141. *Bot. mag.* t. 61. *Hort. kew. ed. I.* i. 72; *ed. II.* i. 115. *Moench. marb.* i. 529. *Horn.* i. 56. *Bieb.* i. 32. *Pers. ench.* i. 52. (*Willd. enum.* i. 65, is described as having the inner segments of the corolla lanceolate.)

*I. Guldenstaedtii*. *Willd. enum.* i. 65.



*I. guldenstaediana*. *Linn. & Spreng.* i. 161. *Diob.* ii. 43 8, but the laminae of the outer segments of the corolla described as rather oblong.

(*I. orientalis*. *Mill. Ph. dict.* n. 9 is described as having a trigonous germen and barbate corolla.)

*Stem* erect, 3 and 4 feet long, with 4 flowers. *Leaves* contrary, dark green, sheathing the stem at the very base, from 5 tenths to an inch broad, to 27 inches long, the lowermost recurvate, those above straight, erect, the uppermost with scarcely any lamina. *Peduncles* trigonous, striate. *Germen* as long as the peduncle, terete, sessile; the lower half lanceolate; the angles adjoining to the sutures rather nearer to each other, the upper half twice as narrow, subattenuate. *Flowers* scentless. *Corolla* 3 inches 8 tenths long; tube turbinate, green, four times shorter than the germen; segments incumbent, emarginate, crenulate above; 3 outer spatulate, recurvate; unguis oblong, canaliculate, very patent, nearly 4 times as long as the tube, yellowish with a yellow costa and green longitudinal veins, whitish at the margin; laminae subrotund-oval, longer than the unguis, white, with an oval yellow spot extending from the base to above the middle; 3 inner segments nearly as long as the 3 outer, patent, white, with greenish yellow longitudinal ribs along the middle to within an inch of the end. *Stamina* inserted at the base of the 3 outer segments. *Filaments* subulate compressed tetragonous yellow. *Antherae* linear tawny white twice as long as the filaments. *Pollen* orangecoloured. *Stigmata* linear, white, somewhat longer than the unguis of the outer segments of the corolla, canaliculate underneath, carinate on the face, deflex at the sides, incurvate at the margin; lips bipartite; upper lip exserted at the outer margin. Probably liable to considerable variations.

9. *IRIS versicolor*. Corolla glabra, lacinae exteriores spatulatae; interiores ellipticae stigmata aequantes. Germen trigonum, tubo corollae longius, pedunculo brevius. Caulis multiflorus, foliis brevior. Capsulae angulis rotundatis.—Corolla glabra, outer segments spatulate, the inner elliptic, as long as the

stigmata. German trigonous, longer than the tube of the corolla, shorter than the peduncle. Stem multiflorous, shorter than the leaves. Angles of the capsule rounded. *Obs.* 10569. 10869. 10055. In Highfield and Darley gardens and in a garden the root from Darley garden. 18 June to 18 July.—*Bot. bot. med.* i. 117. *Linn. a Willd.* i. 283; *a Roem. & Schult.* i. 467; *a Spreng.* i. 160. *Willd. enum.* i. 65. *Horn.* i. 56. *Pursh.* i. 29. *Walt.* 67. *Moench. manh.* i. 528. *Mill. Pl. dict. n.* 18. Colours different from any described below.

*a purpurea* (Variety) Corolla purple. *Obs.* 10863.

*l. versicolor.* *Bot. mag. t.* 21.

Stem compressed, flexuous and geniculate above, slightly carinata on one side,  $1\frac{1}{2}$  to 2 feet long, branched from near the base; a transverse section oval; internodia dilatate at the end; upper branches equalling the stem, with several flowers, geniculate, rigid. Leaves green with a tinge of purple at the base, 6 to 8 tenths broad. Peduncles semiterete. Flowers 2 inches 6 and 8 tenths long. Germen triquetrous, linear,  $1\frac{1}{2}$  and twice as long as the tube of the corolla, twice as short as the peduncle; sides with a depressed line along the middle. Corolla 1 inch 8 tenths and 2 inches 2 tenths long, purple in the parts which are violet in *l.*; tube campanulate, torose; prominences 3, blackish green; outer segments recurvate, 6 to 9 tenths broad; unguis linear, canaliculate, tawny strawcoloured with minute purple spots and purple lines on the sides, with a reflex margin at the base; laminae elliptico-ovate, 6 to 9 tenths broad, purple with a white and strawcoloured acute blotch at the base; inner segments oblongo-lanceolate, petulous, purple. Stigmata linear, carinate on the face, whitish; keel purple. *Obs.* 10863.—Capsule still green, trilocular, trigonous, ovate-oblong, acuminate, shining, 1 inch 4 tenths long, 6 tenths broad; angles rounded, with a line along the middle; sides slightly convex, with an obsolete line along the middle. Seeds disposed in 2 rows in each cell, angular, compressed; face straight, carinate; back convex. Tunic spongy, tawny, thickish. Endosperm tawny,

granular. *Perisperm* oval and obovate, white, tough, as if composed of granules dispersed through a semi-transparent mass. *Corculum* fusiformi-oblong, cuspidate at the base, embedded in the perisperm, near the hilum, soft, indistinctly granular. *Obs.* 7808.

β *violacea* (Variety) Corolla violetcoloured. *Obs.* 10569.

I. versicolor. *Bot. mat. med.* i. 117. *Vahl. enum.* ii. 139.

*Stem* simple, sometimes with 1 and 2 branches, 2 feet long, slightly flexuose above, obsoletely two-edgd, solid, with 5 and 6 flowers; transverse section oval. *Flowering branch* biflorous. *Leaves* ensate, striate, erect, longer than the internodia, to 7 tenths broad, blackish purple at the base, surrounding the stem above each joint with a coloured ring; margin membranaceous, microscopically serrulate; lower floral leaf not equaling and equalling the stem. *Bracteae* ensate, canaliculate, purplish black at the base, withering, becoming tawny. *Peduncles* obsoletely trigonous. *Flowers* to 8 inches 4 tenths long. *Germen* oblong, shining and scarcely shining, shorter and thicker than the pedicle, 6 tenths long; sides slightly convex and flat, with a faint dark green longitudinal line; angles rounded, mostly with a faint longitudinal stria, the lines and striae becoming more distinct after florescence. *Corolla* 2½ inches and 2 inches 7 tenths, in a very warm summer 1 inch 8 tenths long; tube oblongo-turbinate, concave, somewhat shorter than the germen, yellowish green, shining and somewhat shining, with a line decurrent from each commissure; segments unguiculate, distinct; outer segments spatulate, patent; inner segments oblongo-patulous, elliptic, shorter than the outer by more than one third; ungues canaliculate, tawny yellow with brownish purple veins, those of the outer segments linear, canaliculate, with the margin reflex at the base, inflex above, with 2 projecting ridges at the base on the inside, those of the inner segments with a marginal angle and anteriorly projecting tooth on each side at the base; laminae of the outer segments rhomboid and elliptico-oval, nearly twice as broad as those of the inner segments, 8 tenths to an inch broad, deflex, violetcoloured above, whitish with purple veins

below; margin irregularly flexuose. *Stamina* inserted into the tube of the corolla, erect, slightly recurvate. *Filaments* subulate, purplish. *Antherae* linear, purple, bilocular, opening on the outer side. *Pollen* whitish strawcoloured, oval, when moistened ovali-globose. *Style* terete, shorter than the tube of the corolla. *Stigmata* tripartite; segments cuneato-linear, patent, recurvate, extending one tenth beyond the inner segments of the corolla, concave on the back, convex and carinate on the face, bilabiate at the end; margins purplish white; sides purple; the middle violet, whitish at the base; upper lip bipartite, ascending, violet blue; segments linear, obliquely truncate; outer and terminal margins eroso-serrate; lower lip widely triangular, rather obtuse, denticulate.

✓ *caerulea* (Variation) Corolla blue. *Obs.* 10055.

*I. virginica.* *Jacq. coll.* ii. 322; *ic.* ii. t. 229. *Bot. mag.* t. 703.

*I. Ehret. pict.* t. 6. f. 2. *Dill. hort.* 187. t. 155. f. 187. (f. 188 with crenate stigmata probably a distinct species.)

*Stem* simple, erect, to 2 feet long, slightly compressed, sometimes in places obsoletely twoedged, solid; transverse section oval. *Leaves* ensate, striate, erect, gradually shorter upwards; lower floral leaf sometimes extending to 4 inches above the end of the stem, green, 6 tenths broad, the lower purplish brown and purplish pink at the base; radical leaves of the shoots to 3 feet long, rising above the top of the flowering stems. *Bracteae* carinate, ensate, withering and becoming whitish brown at the end and margins. *Peduncles* 2 together, shorter than the bracteae, erect. *Germen* oblong, trigonous, shining, whitish green, shorter than the peduncle; sides slightly convex, with mostly a slight longitudinal depression. *Corolla* infundibulate; tube turbinato-oblong, as long as and somewhat shorter than the germen, green, shining, concave; segments unguiculate, incumbent and not contiguous at the base; inner segments shorter than the outer by more than one third; ungues canaliculate, tawny yellow with brownish purple veins, greenish underneath, those

of the outer segments linear-cuneate, patent, thrice as long as the tube, the margins at the base inserted into the upper surface of the unguis of the 3 outer segments; margin reflex below, inflex above; unguis of the inner segments cuneate, nearly erect, slightly cordate at the base, as long as the tube, bordered on one margin; laminae of the outer segments rhombic-obovate, rounded, acute and emarginate, purplish violet with violet veins, white at the base with violet veins, thrice as broad as the unguis, 1 inch broad, deflex; margin entire and obsoletely crenate; laminae of the inner segments elliptic, concave, obtuse acute and erose at the end, not quite half as broad as the laminae of the outer segments, whitish purple and whitish purplish blue with bluish white streaks and with purple veins. *Stamina* inserted into the mouth of the tube of the corolla, shorter than the inner segments of the corolla. *Filaments* subulate, white. *Antherae* linear, pinkish purple, bilocular; cells opening on the back. *Pollen* straw-coloured, oval-elliptic, when moistened oval and globose. *Stigmata* tripartite, triquetrous at the base; segments cuneato-linear, patent recurvate, extending nearly 2 tenths beyond the inner segments of the corolla, concave underneath, convex and carinate on the upper side, bilabiate at the end; the sides purplish white, the middle reddish purple; upper lip bipartite ascending, lineate; segments oval, erososerrate, incumbent, undulate, purplish blue; lower lip very short, transversely linear, bilobate and trilobate; lobes triangular, crenato-erose.

§ *regularis* (Variation) Corolla regular, all the segments equal, the 3 inner being similar to the 3 outer. *Obs.* 10564. From the same root which generally produced the flowers described under *a*.

In some flowers only 4 or 5 segments of the corolla similar. *Stamina* 5. *Stigmata* sometimes 4.

10. *IRIS tuberosa*. Corolla glabra; tubo germinis brevior; laciniis interioribus mucronatis. Folia tetragona.—Corolla glabrous; tube shorter than the germen; inner segments mucronate. Leaves tetragonous. *Obs.* 12054. 12664. Specimens gathered by

Mr Baker in Count Camaldolis garden, and on dry banks and walls near Mola di Gaeta in the kingdom of Naples. 19 Mar.—*Linna. sp.* i. 58 ; *a Willd.* i. 240 ; *a Roem. & Schult.* i. 480 ; *a Spreng.* i. 159. *Lois.* i. 31. *Pollin.* iii. 769. *Willd. enum.* i. 88. *Vahl. enum.* ii. 152. *Lam. & Dec.* v. 328. *Dec. & Dub.* i. 452. *Seb. & Maur.* 20. *Gau. hort.* 27. *Link. enum.* i. 60. *Bot. mag.* t. 531. *Hort. kew. ed. I.* i. 78 ; *ed. II.* i. 120. *Silth. prodr.* i. 28 ; ii. 355. *Dod.* 249, *repr. in Lob. obs.* 51 ; *ic.* i. 98, *Ger. by Johns.* 103, *cop. in Ger. J.* 94, *Park. parad.* 188. t. 185. f. 6, *Dalech.* ii. 1813, & *Bauh. J.* ii. 730.

*I. Sauv.* 43. n. 186.

*Hermodyctylus. Tour. cor.* 50. *Boerh.* ii. 125.

*I. tuberosa*, flore obscure viridi colore. *Mor. & Bob.* ii. 348. s. 4. t. 5.

*Stem* uniflorous. *Leaves* a tenth broad, those of the stem lanceolate, conduplicate, to  $\frac{1}{4}$  inch broad. *Bractees* 2, lanceolate sometimes with a membranaceous tooth on each side about the middle. *Flower*  $3\frac{1}{2}$  inches long. *Peduncle* filiform,  $1\frac{1}{2}$  inch long. *Germen* clavate, shorter than the peduncle. *Corolla* nearly 3 inches long ; lower part of the tube filiform as broad as the peduncle, nearly thrice as short as the gemmen ; upper part of the tube turbinate, as long as the lower ; limb thrice as long as the tube ; outer segments elliptic ; inner segments spatulate, with a setaceous mucro, many times smaller than the outer segments. *Stigmata* about as long as the outer segments of the corolla ; segments of the upper lip semiovate, acuminate, flexuose at the margin ; lower lip bipartite ; segments triangular obtuse. *Antherae* linear, yellow.

*Nat.* of Arabia and the Levant, and found in the kingdom of Naples near Vicenza Rome Genoa Toulon and Agen, and in Upper Poitou in France but whether propagating itself in Western Europe by seed we are not informed.

9. *Corollae laciniae exteriores liratae*.—Outer segments of the corolla liratae.

11. *IRIS cristata*. *Corollae laciniae exteriores medio liratae*. *Stigmata integerrima*.—Outer segments of

the corolla lirate along the middle. Stigmata entire at the margin. *Obs.* 8289. In Darley garden.—*Obs.* 5215. Specimen gathered in Upton garden.—*Hort. kew. ed. I.* i. 70; *ed. II.* i. 117. *Linn. a Willd.* i. 224; *a Roem. & Schult.* i. 462; *a Spreng.* i. 163. *Vahl. enum.* ii. 132. *Willd. enum.* i. 62. *Link. enum.* i. 57. *Michaux* i. 29. *Pursh.* i. 29. *Ker irid.* 55. *Bot. mag. t.* 412. *Smith. spic. t.* 13. *Sal. R. hort.* 43.

*I. verna.* *Bot. mat. med.* i. 118. *Linn. a Murr.* 91; *a Willd.* i. 235; *a Roem. & Schult.* i. 474. *Hort. kew. ed. II.* i. 117.

*I. radice fibrosa.* *Clayt. & Gron. ed. I.* 10; *ed. II.* 7.

*I. Pluk. alm.* 198; *phyt. t.* 196. *f.* 6.

(*I. odorata.* *Pers. ench.* i. 53 *cop. in Linn. a Roem. & Schult.* i. 481 is characterised as having grasslike leaves.)

*Stems* leafy above, 4 to 8 inches long, flowering stems shorter than the barren stems, with 1 and 2 flowers. *Leaves* contrary, lanceolate, multinervose, to 6 tenths broad; margin entire acute. *Flowers* to 4 inches long, erect, terminal, solitary and 2 together. *Peduncle* obsoletely trigonal, twice as short as the stem. *Germen* lanceolate, trigonal, nearly twice as short as the peduncle. *Corolla*, tube triquetrous, attenuate, many times longer and narrower than the germen; segments twice as short as the tube, trinervose along the middle. *Obs.* 8289.

*Nat.* of Virginia and Carolina.

12. *IRIS fimbriata.* Corollae laciniae exteriores liratae. Stigmata laciniata.—Outer segments of the corolla lirate. Stigmata laciniate. *Obs.* 6940. In Maresbrook and Mount pleasant gardens.—*Pers. ench.* i. 51. *Hort. kew. ed. II.* i. 120.

*I. chinensis.* *Bot. mag. t.* 373. *Horn.* i. 55. *Vahl. enum.* ii. 133. *Linn. a Roem. & Schult.* i. 463; *a Spreng.* i. 162. *Willd. enum.* i. 63. *Ker irid.* 64. *Roxb. ind.* i. 174.

Glabrous. *Leaves* contrary, lineari-lanceolate, multinervose, to nearly 1½ inch broad, pendulous; one side grass green, the other whitish green with green ribs. *Racemus* terminal, 9 inches long. *Branches*

alternat, terete with 8 and 4 flowers, as long as the flowers. *Bractee* of the racemus ensato-ovate, acute, carinate, perfoliate at the base, half as long as the branches. *Fasciculi* with 3 and 4 flowers. *Bractee* of the flowers ovate, acute, perfoliate at the base. *Peduncles* triquetrous, compressd, thrice as long as the germen. *Germen* trigonal, shining. *Corolla* purplish white, with a scent like that of *I. persica*; tube greenish, half as long again as the germen; segments oblongo-lanceolate; 3 outer recurvate, white and orange-coloured along the middle to near the end, with 3 lirae on the face along the middle; middlemost lra more elevated, villose with white hairs. *Stigmata*, the 2 segments of the upper lip laciniate; lacinulae filiformi-subulate, curld; lower lip truncate; margin deflex obsoletely crenate.

3. *Corollae laciniae exteriores unguibus hirsutis*.—*Ungues* of the outer segments of the corolla hirsute.

13. *IRIS compressa*. *Corollae laciniae exteriores facie pubescentes*. *Caulis compressus*.—*Ungues* of the outer segments of the corolla pubescent along the face. Stem compressd. *Obs.* 2726. In Darley garden, in fr. *Obs.* 10860. In Highfield garden. 19 June to 10 July. —*Thunb. prodr.* 11; *cap.* i. 286; *ap. Linn. suppl.* 98. *Linn. a Willd.* i. 280.

*I. moraeoides*. *Bot. mag. t.* 693. *Linn. a Spreng.* i. 160. *Ker irid.* 64.

*Moraea iridioides*. *Linn. mant.* i. 28; *a Willd.* i. 244; *a Roem. & Schult.* i. 454. *Hort. kew. ed. I.* i. 75; *ed. II.* i. 114. *Vahl. enum.* ii. 158. *Gaertn.* i. 40. *t.* 13. *Willd. enum.* i. 67.

*Naron iridioideum*. *Moench. marb.* i. 627.

*Stem* branched, 18 to 21 inches long, rigid, solid; branches subfastigiate, with 1 and 2 flowers. *Peduncules* pubescent. *Germen* trigonal, striate. *Corolla* sexpartite, white, turbinate, curling up after flowering; segments unguiculate, patent, pinkish at the very base; 3 outer segments cuneate, canaliculate on the back; face carinate and pubescent along the middle, with a transversely oval yellow spot at the end, with yellow



oblique streaks and spots at the base on each side of the carina; 3 inner segments white; unguis canalliculate, twice as short as those of the 3 outer segments; laminae oblongo-ovate. *Stamina* 3, erect, shorter than the unguis of the 3 outer segments of the corolla. *Filaments* ensate connate at the base, white and pinkish. *Antherae* ensate, bilocular, erect. *Pollen* roundish, when moistened globose, white, large. *Style* triquetrous, whitish, shorter than the breadth of the germen. *Stigmata* 3, ovato-lanceolate, patulous, bilabiate at the end, purplish white, purple and carinate along the middle; carina of the upper surface formed by the convergent edges of 2 loose margins; upper lip bipartite, half as long as the lower part of the stigma; segments acute, incumbent, obliquely crossing each other; lower lip very short, semicircular, transverse, erect, bluish white, very thin, extending nearly from one margin of the stigma to the other. *Obs.* 10860.—*Capsule* trilobular, oblong, when still green trigonous, striate, rugose, shining,  $1\frac{1}{2}$  inch long; striae flexuose. *Seeds* angular, polyedral and depressed, in 2 rows in each cell, those in the middle of a row with parallel horizontal sides, atrous and atro-rufous, dull rugose, microscopically scabrous. *Perisperm* horny, tough, livid and white; thin sections cut in different directions appearing as if composed of semitransparent nearly contiguous whitish grains in a transparent colourless mass; sections cut parallel to and near to the flat sides opaque with clusters of opaque granules. *Corculum* terete, rounded at each end, striate, curvd, in a cavity of the perisperm, nearly touching the integument of one of the perpendicular sides, half as long as the perisperm, whitish, the end next the integument greenish yellow, indistinctly and minutely granular; granules in lines. *Obs.* 2726.

14. *IRIS punctata*. Inner segments of the corolla larger. Stem uniflorous, longer than the leaves. *Obs.* 12761. Specimen of leaves from a plant in fl. in a garden in Ashover. 9 July.—*Specimen* in Mr. Knowlton's herbarium, and seen in Sanson fields garden.—*Moench. herb. i.* 527. The specific character from

- I. susiana.* *Vahl. enum.* ii. 125. *Linn. sp.* i. 65; *a Willd.* i. 225, *a Roem. & Schult.* i. 456; *a Spreng.* i. 162. *Ker irid.* 55. *Willd. enum.* i. 62. *Hort. kew. ed. I.* i. 69; *ed. II.* i. 117. *Bot. mag.* t. 91. *Mill. Ph. dict. n.* 5. *Clus. pann.* 243. No fig.—*Boerh.* ii. 124. *Rupp. ab Hall.* 82. *Magn. hort.* 105.
- I. chalcidonica.* *Best. Bas. vern. ord.* 8. *fol.* 4. *f.* 1. *Park. parad.* 179. t. 183. *f.* 1. *Rais hist.* ii. 1181. *Ger. J.* 51. *Lob. obs.* 35, *repr. in ic.* i. 67, *Ger. by Johns.* 55, *and cop. in*
- I. Dalech.* ii. 1616, *outer fig.* *Bauh. J.* ii. 721, *and Bauh. Casp. theatr.* 579. *Clus. hist.* i. 217, *repr. in Ger. by Johns.* 54.
- Leaves* linear, attenuate at the end,  $1\frac{1}{2}$  foot long,  $\frac{1}{2}$  inch broad, canaliculate below, contrary at the end. *Petals* with minute spots and interrupted lines.
15. *IRIS variegata.* *Germen sexlineatum, tubo corollae duplo brevius, pedicello longius. Corollae laciniae exteriores spatulatae, interioribus angustiores. Caulis multiflorus surculis brevior.*—*Germen sexlineate, twice as short as the tube of the corolla, longer than the pedicle. Outer segments of the corolla spatulate, narrower than the inner. Stem multiflorous, shorter than the shoots.* *Obs.* 8116. In Darley garden. 25 June.—*Obs.* 12052. In Broomhouse garden. 13 June.—*Linn. sp.* i. 56; *a Murr.* 89; *a Willd.* i. 227; *a Roem. & Schult.* i. 460; *a Spreng.* i. 162. *Vahl. enum.* ii. 129 where read *folia aequante.*—*Willd. enum.* i. 63. *Link. enum.* i. 58. *Host. fl.* i. 45; *syn.* 25. *Bluff & Fing.* i. 53. *Hort. kew. ed. I.* i. 69; *ed. II.* i. 118. *Jacq. viad.* 8. *Honck.* i. 279. *Mill. dict. n.* 4. *Cam. hort.* 80. In Franconia. No fig.—*Bot. mag.* t. 16. Inner segments of the corolla acute.—*Maench. marb.* i. 528. Outer segments of the corolla purplish blue; inner segments white.—*Schrad. germ.* i. 103 describes the erect petals as narrower than the reflex.
- I. vulgaris*  $\gamma$  *Hall. gott.* 67.
- I. pannonica.* *Best. Bas. vern. ord.* 8. *fol.* 6. *f.* 3.
- I. latifolia pannonica.* *Boerh.* ii. 124. *Rais hist.* ii. 1184. *Bauh. Casp. theatr.* 586, *cop. from*

- 1. *Clus pann.* 246, which repr. in *hist.* i. 221, and
- 1. *lutea variegata.* *Ger. by Johns.* 53, and cop. in *Ger. J.* 51. *Rupp. ab Hall.* 32. *Lob. obs.* 34, repr. in *ic.* i. 66, cop. in *Dalech.* ii. 1616, repr. in
- 1. *violacea.* *Ger. by Johns.* 53, and cop. in
- 1. *biflora.* *Bauh. J.* ii. 722, (the name and descr. belonging to another plant.)
- 1. *lutea.* *Bauh. J.* ii. 720. (The fig. a copy of *Lob. ic.* i. 62. f. 2.)
- 1. *lutea variegata*, another sort. *Park. parad.* 182.
- 1. *latifolia variegata.* *Park. parad. t.* 183. f. 3.

*Stem* sometimes a scapus slightly compressd, erect, branched at the end, with from 2 to 5 flowers, from 12 to 20 inches long. *Branches* with from 1 to 3 flowers. *Leaves* contrary, distichous, erect, lanceolatusate falcate and slightly incurvate at the end, glaucous, rorid, purple at the base, to 2 feet long, to 2 inches broad, those embracing the base of the scapus as short again as the scapus; inner margin convex; outer nearly straight. *Flowers* alternat,  $2\frac{1}{4}$  inches long; scent resembling that of a honeycomb. *Bractee* elliptic, bifarious, amplexicaul and semiamplexicaul, membranaceous at the margin. *Germen* ovali-oblong, shining, microscopically tuberculate,  $4\frac{1}{4}$  tenths long, terete and obscurely trigonal and hexagonal, sessile and nearly sessile longer than and  $1\frac{1}{4}$  as long as the pedicle; angles with a slight furrow; sides with an obsolete green carina. *Corolla* yellow underneath; tube triquetrous, with a furrow along each side, dilatate above, twice and thrice as long as the germen; limb sexpartite, 3 outer segments obovato-oblong, entire and emarginate at the end; unguis yellow; with reddish brown veins; laminae whitish and tawny below with purplish brown veins, purplish brown at the end, rolling up inwards after florescence; 3 inner segments erect, connivent after being gatherd, yellow, just sensibly shorter than the outer; unguis canaliculate, compressd, with connivent margins, with minute purplish brown spots; laminae obovato-oval, erose, obsoletely emarginate and entire at the end, one fourth broader than those of the outer segments, concave, carinate, undulate, minutely spotted at the base. *Stig-*

*mata* yellow, as long as the bearded unguis; outer margin of the segments of the upper lip eroso-serrate and obsoletely serrate. *Obs.* 8116. June 17.

*Nat.* of Hungary Austria Bohemia and Moravia.

♂ *maculata*. Outer segments of the corolla brownish purple at the end. *Obs.* 10053. In a garden.

*Corolla*, laminae of the outer segments whitish with brownish purple veins; laminae of the inner segments oblongo-obovate.

γ *emarginata*. Inner segments of the corolla emarginate. *Obs.* 12052.

*Flowers* 3 inches 8 tenths long. *Corolla*, outer segments entire, whitish with brownish purple lines and spots, 6 tenths broad; inner segments 1 inch 2 tenths broad, lemoncoloured.

16. *IRIS pumila*. Germen corollae tubo duplo brevius. Corollae laciniae interiores latiores. Caulis uniflorus. —Germen twice as short as the tube of the corolla. Inner segments of the corollae broader. Stem uniflorus. *Obs.* 3327. In a garden. 10 May.—*Obs.* 12666. Specimen gathered in Edinburgh garden. 4 May.—*Obs.* 12667. 12668. Specimens gathered by Broussonet near Montpellier.—*Linn. sp.* i. 56; *veg.* 78; *a Murr.* 83; *a Willd.* i. 224; *a Roem. & Schult.* i. 464; *a Spreng.* i. 163; *hal.* 20. *Willd. enum.* i. 62. *Vahl. enum.* i. 135. *Horn.* i. 56. *Link. enum.* i. 57. *Moench. marb.* i. 528. *Baumg. transyl.* i. 61. *Lam. & Dec.* iii. 237; *syn.* 167; *Dec. & Dub.* i. 451. *Thuill.* 17. *Lois.* i. 29. *Gau. hort.* 26. 547; *monsp.* 8. *a Schrad. germ.* i. 102. *Roth. germ.* i. 17; ii. *pars* i. 42; *enum.* i. 118. *Bieb.* i. 30. *Jacq. vind.* 8. *Host. syn.* 25; *fl.* i. 46. *Bluff & Fing.* i. 53. *Honck.* i. 280. *Hort. kew. ed. I.* i. 70; *ed. II.* i. 118. *Bot. mag. t.* 9. *Gmel. C. bad.* iv. 29. *Sibth. prodr.* i. 27. *Ker irid.* 56. *West.* iii. 418, *var.* 1.

1. *Ger. Lud.* 144. n. 2.

I. minor. *Dod.* 244, *repr. in*

I. violacea parva. *Lob. ic.* i. 63, *and*

*Chamaeiris latifolia minor.* *Clus. hist.* i. 223, *and cop. in*

*Chamaeiris minor purpurea.* *Bauh. Casp. theatr.* 608.

*Chamaeiris latifolia major.* *Clus. hist. i. 225, repr. in*

*Chamaeiris latifolia.* *Lob. ic. i. 65 and Ger. by Johns. 57, and cop. in*

*I. humilis latifolia major.* *Bauh. J. ii. 724, and Chamaeiris minor, flore rubello. Bauh. Cesp. theatr. 610.*

*Chamaeiris.* *Clus. hist. i. 226, repr. in*

*Chamaeiris lutea.* *Lob. ic. i. 66 and Ger. by Johns. 58, and cop. in*

*I. humilis latifolia minor.* *Bauh. J. ii. 724, and Chamaeiris minor flore pallide. Bauh. Cesp. theatr. 611.*

*Chamaeiris latifolia major purpurea.* *Park. parad. 186. t. 183. f. 4.*

*I. perpusilla.* *Magn. monsp. 141. Raii cur. 155. Lob. adv. 32, repr. in ic. i. 64, and cop. in Dalech. ii. 1612 and*

*Chamaeiris saxatilis.* *Bauh. Cesp. theatr. 611.*

*I. perpusilla.* *Lob. obs. 33, repr. in*

*Iridis varietas.* *Lob. ic. i. 64, and*

*Chamaeiris variegata.* *Ger. by Johns. 58, and cop. in Chamaeiris. Dalech. ii. 1612, and*

*Chamaeiris angustifolia.* *Park. theatr. 256 represents it as found in gardens, as in Obs. 3327.—Raii hist. ii. 1186.*

*Leaves* contrary, falcato-ensate and lanceolate, shorter than the stem, multinervose, 2 to 3 tenths broad; margin submembranaceous, obsoletely serrulate. *Scapus* 5 inches long. *Bracteae* 2, alternat, lanceolato-ensate, twice and thrice as long as the germen. *Germen* magistiform,  $\frac{1}{4}$  inch long. *Corolla* 3 inches long; tube shorter than the bracteae, terete below, turbinate above; inner segments obovate, emarginate. *Obs.* 12667. 12668. *Scapus* strict, 9 inches long, longer than the leaves. *Leaves* to nearly 6 tenths broad; margin submembranaceous entire. *Corolla* purple, with a scent like that of *I. germanica*, 4 inches long; tube solid, 2 inches long; segments unguiculate, obovate, 3 inner emarginate erecto-connivent, undose. *Stigmata* oblongo-lanceolate, longer than the unguis of the co-

reels, bilabiate; lower lip very short, rounded, villous on the face; upper lip bipartite; outer margin of the segments serrate. *Stamina* inserted at the base of the outer segments. *Antherae* bilocular, strawcoloured with a tinge of blue. May prove a variety of *I. germanica* connected by *I. pumila*  $\beta$  and *I. germanica*  $\beta$  of Roth. germ. ii. pars i. 42, 43. Let those who can raise plants from the seeds of these species, which bear the same relation to each other as *Narcissus* minor *Pseudo Narcissus* and major. *Obs.* 3327.

*Nat.* of Caucasus Crimea Greece Transylvania Hungary the south of Germany and France, and found on walls and roofs in the north of Germany and France.  $\beta$  *caerulea*. Corolla blue. *Obs.* 12669. In Edinburgh garden.

*I. pumila*. *Schult. obs.* 14. *West.* iii. 418 var. 3.

17. *IRIS germanica*. Germen trigonum, corollae tubo brevius, pedicello longius. Caulis multiflorus, surculos aequans, ramis unifloris. Folia falcata lanceolataque. Corollae lacinae interiores obovato-ovales, conniventes. —Germen trigonal, shorter than the tube of the corolla, longer than the pedicle. Stem multiflorous, equalling the shoots; branches uniflorous. Leaves falcate and lanceolate. Inner segments of the corolla obovato-oval, connivent. *Obs.* 3716. In a garden from 20 May to 25 June. In other years sooner out of ft.—*Bot. mat. med.* i. 113. *Linn. a Willd.* i. 229; *a Roem. & Schult.* i. 457; *a Spreng.* i. 161; *kal.* 20. In groves and woods. —*Vahl. enum.* ii. 126, with a new specific character not distinguished as such.—*Bluff & Fing.* i. 53. Capsule ovate trigonal.—*Hagenb.* i. 28. Not differing from what is found in gardens.—*Link. enum.* i. 57. *Hort. kew. ed. II.* i. 119. *Baumg. transylv.* i. 68. *Roth. germ.* i. 17; *enum.* i. 119. *Lam. & Dec.* iii. 236; *syn.* 167. *Dec. & Dub.* i. 451. *Lois.* i. 29. *Wahl. kew.* 9. *Jacq. vind.* 8. On grassy mountains.—*Host. fl.* i. 45; *syn.* 26. In wet marshy situations in Lower Austria and Hungary.—*Boen.* 13 under n. 48. Outcast of gardens.—*Wib.* 88. *Gou. monsp.* 8. *Retz. scand.* 14. *Honck.* i. 276. *Thwill.* 17. *Mull.* 10. In the isle of Saltholm.—*Willd. enum.* i. 63. *Hell.* i. 48. On walls

- and among rubbish, escaped from gardens.—*Scop. carn.* i. 39. *Bieb.* i. 31. In rocky ground about the village of Alupkam in the south of Crimea.—*Schult. obs.* 14. *Seb. & Maur.* 19. *Schrad. germ.* i. 104. *Horn.* i. 54. *Pollin.* i. 48. *Mill. Ph. dict.* n. 8. *Schlect. ber.* i. 25. *Gmel. C. bad.* i. 78. *Sut.* i. 24. *Moench. marb.* i. 527. *Sibth. prodr.* i. 26. Throughout Greece in churchyards and villages.—(*Trag.* 703, repr. in *I. nostras sativa. Cord. fol.* 133. p. 1, is *I. squalens*  $\alpha$  *Fuchs. c.* 120. 12mo. 312 is *I. squalens*  $\beta$ )
- $\alpha$  *violacea.* Corolla violetcoloured. *Obs.* 3716.
- I. Linn. ups.* 16. n. 1. *Sauv.* 40. n. 107. *Kram.* 12. n. 2. *Roy.* 17. n. 2. *Hall. hist.* ii. 128. *Boerh.* ii. 123. n. 1. *Dod. flor.* 147, repr. in *pempt.* 243, cop. in
- I. major angustifolia.* *Park. theatr.* 255, and repr. in
- I. vulgaris.* *Lob. obs.* 32. *Ger. J.* 46. *Rati hist.* ii. 1180. *Magn. monsp.* 141; *hort.* 105. *Rupp. ab Hall.* 31. *Hall. gott.* 67. *Bauh. Casp. theatr.* 571; *pin.* 30, planted on roofs and walls of vineyards, and when introduced into gardens improved in beauty.
- I. latifolia vulgaris caerulea.* *Best. Bas. vern. ord.* 8. *fol.* 5. f. 2.
- I. latifolia major vulgaris.* *Clus. hist.* i. 224. In gardens and on walls and roofs in most parts of Europe. No fig.
- I. hortensis latifolia.* *Magn. hort.* 105. *Rupp. ab Hall.* 32. *par.* 1.
- I. asiatica purpurea.* *Bauh. Casp. pin.* 31. *Clus. pann.* 245. No fig. Descr. cop; in *Bauh. J* ii. 717, and
- I. latifolia major V.* *Clus. hist.* i. 219, who received it from Constantinople. (The fig. is *I. Pseudacorus*.) (*I. sylvestris. Cord. fol.* 133. p. 2 is *I. squalens*  $\alpha$ )
- Stem* erect, to 3 feet long. *Branches* 3 and 4, erect, alternat, distichous, longer than the floral leaves. *Leaves* of the shoots for next year ensate and lanceolate, distichous, slightly curvd, both margins curvd, striate, nervose, slightly glaucous, rorid, from 1½ inch to 1 inch 8 tenths broad, to 2 feet long, decaying in

spring and the new ones taking their place so gradually as to lead a transient observer to consider them as perennial; cauline leaves 4, distichous, 1 foot to 17 inches long, striate, nervose; petioles canaliculate; laminae contrary, lanceolate; earina decurrent down the petioles; floral leaves 2 at the base of the branches, opposit, carinate, those of the upper branches scariosae, the inner of the lower branch scariosae. *Bracteae* 3 to each flower, the 2 outer lanceolato-oblong, scariosae, canaliculate, opposit, inserted at the base of the peduncle, the lower amplexicaul, the upper nearly vaginant, nearly thrice as long as the peduncle, extending beyond the end of the germen, the next above longer than the germen, reaching nearly to the end of the tube; the inner setaceous, as long as the peduncle. *Peduncle* from 3 to 8 tenths of an inch long. *Germen* oblong, truncate at each end, as long as and thrice as long as the peduncle, 6 and 7 tenths long, at length becoming near an inch long, slightly shining, minutely tuberculate; sides scarcely convex, with a line and in others an obsolete ridge along the middle; angles rounded, with a barely discernible green line along 2 and 3 of them. *Flowers* to 5½ inches long. *Germen* in one instance, in 1825, enlarged to 8 tenths of an inch long. *Corolla* infundibulate; tube trigonal, 1½ as long as the germen, 9 tenths to 1½ inch long, gradually dilatate, shining, green with purple linear dots; angles obtuse; sides slightly depressed; limb quinquepartite, with a white fleshy projecting tooth at the commissures; segments unguiculate, when going out of flower curling up with an elastic force; outer segments oblongo-obovate, to 3 inches 5 tenths long, to nearly 2 inches broad; inner segments erose, in some plants acute at the end, shorter and broader than the outer segments, 3 inches 2 tenths long, 1 inch 8 tenths to 2 inches broad; unguis cuneate, patent, rigid, fleshy, underneath greenish with short linear purple spots, those of the outer segments twice as long as the tube, the upper surface with a linear beard along the middle, the sides whitish with purplish red longitudinal lines ramifying laterally; the margins recurvate; beard hirsute, 1½ inch long; hairs filiform, obtuse, erect, orangecoloured,



those at the end bluish white; unguis of the inner segments half as long as those of the outer segments, canaliculate, subvillose along the middle of the upper surface. An infusion of the corolla purplish blue, changed by vinegar to dull pink, by lemon juice and by nitric acid to pink, by ammonia and kali to green. *Filaments* subulate, purplish white, inserted into the mouth of the tube of the corolla, at the base of the reflex segments, erect, slightly recurvate. *Antherae* sagittate, whitish, subrecurvate. *Pollen* whitish, globose, of different sizes, transparent at the margin. *Style* triquetrous, coalescing below with the tube of the corolla; sides slightly concave; vasa deferentia in 3 fasciculi. *Stigmata* 3, elliptic, bilabiate at the end, purplish white, semitransparent, concave underneath, convex and carinate on the face, reaching to the end of the beard of the outer segments of the corolla; upper lip bipartite; segments acute, irregularly serrate at the outer margin; vasa deferentia about 14, purplish brown, commencing near the margin of the upper lip, uniting in 2 fasciculi. *Capitate and seeds* not produced to my knowledge in this country. The most likely mean to render it prolific in this climate would be to plant it in a marsh in the west of England.

*Nat.* of Crimea Greece Transylvania Hungary Italy Switzerland France and Germany as far north as Saxony and Silesia, and in its northern limits found on the walls of vineyards roofs of cottages and borders of fields, in many cases having apparently escaped from gardens.

§ *albida*. Corolla bluish white. *Obs.* 8908. In Renishaw garden.—*Obs.* 11745. In Broomhouse garden. 18 May to 9 June.

*I. florentina* § *Vahl. enum.* ii. 126.

*I. hortensis alba*. *Bauh. Caesp. theatr.* 576. *Rupp. ab Hall.* 32.

*I. sativa, niveis floribus*. *Geon. hort.* 263.

*Stem* erect, 2 feet long, acutely flexuose above. *Branches* 2 and 3, erect, alternat, distichous, uniflorous. *Flowers* mostly solitary, those terminating the stem 2 together, of the same scent as those of *a. Pe-*

*disk* 4 to 8 tenths long, 4 and 5 times shorter than the germen, that of the last flowering terminal flower somewhat shorter than the germen. *Bractææ* purplish at the margin. *Germen* somewhat longer than the pedicle, after flowering scabrous, 9 tenths long, 4 times as long as the pedicle. *Corolla* 4 inches 7 tenths long; infundibulate; tube consolidated with the style; ungues shining underneath, reticulate, with olivaceous veins, those of the inner segments cancellulate, sub-barbate on the face; laminae obovate, acute and rounded. *Stigma* bluish along the middle.

*florientina*. Stem with 2 flowers. Flowers sessile.

*Obs.* 12677. Specimen of a flower from Leske.

*I. florentina*. *Bot. mat. med.* i. 112. *Linn. & Willd.* i. 226; *a. Roem. & Schult.* i. 457; *a. Spreng.* i. 161. *Lam. & Dec.* v. 628. *Dec. & Dub.* i. 451. *Lois.* i. 22. *Hort. kew. ed. II.* i. 119. *Willd. suppl.* 4. *Schult. obs.* 14. *Link. enum.* i. 57. *Seb. & Maur.* 19. *Bot. Bas. vern. ord.* 8. *fol.* 4. *f.* 2 (misengraved 8.)

*I. Bauh. Cesp. theatr.* 577.

*Corolla* 4 inches long; tube terete below, turbinate above, somewhat longer than the germen.

18. *IRIS pallida*. *Germen* subhexagonum sexlineatum nitidum, pedicello longius, corollæ tubum subaequans. *Caulis* multiflorus surculis longior. *Folia* falcata lanceolataque. *Corollæ* laciniae aequales obovatae emarginatae, 3 interioribus conniventibus.—*Germen* subhexagonal, sexlineate shining, longer than the pedicle, somewhat longer and somewhat shorter than the tube of the corolla. *Stem* multiflorous, longer than the shoots. *Leaves* falcate and lanceolate. *Segments of the corolla* equal, obovate, emarginate, the 3 inner connivent. *Obs.* 10544. In Highfield garden. 21 and 27 June.—*Linn. & Willd.* i. 229; *a. Roem. & Schult.* i. 458; *a. Spreng.* i. 161. *Kahl. enum.* ii. 127. *Schult. obs.* 14. *Hort. kew. ed. II.* i. 119. *Willd. enum.* i. 230. *Bot. mag. t.* 635. *Ker irid.* 61.
- I. germanica* pallide caerulea. *Pers. ench.* i. 51.
- I. germanica*. *Sibth. prodr.* i. 26. In Creta.

*I. latifolia*, violaceo colore, major. *Best. Bas. vern. ord. 8. fol. 5. f. 1.*

*I. dalmatica* major. *Boerk. ii. 124. Park. parad. 180. Lob. obs. 82, repr. in ic. i. 61, and Ger. by Johns. 52, cop. in Bauh. J. ii. 715, and the upper part of the stem repr. in*

*I. Clus. hist. i. 218.*

*Stem* 2½ to 3½ feet long, subcompressed, solid, thick in proportion to its length, nearly straight, rigid. *Leaves* sometimes inflex at the end; the inner and sometimes the outer margin straighter than the other, striate, glaucous, rigid, 18 to 23 inches long; to 1 inch 8 tenths broad; margins membranaceous, purplish pink; the vaginant part whitish and shining on the inner side. *Flowers* solitary and in pairs; disagreeably scented to some, agreeably so to others. *Peduncles* distichous; uniflorous and biflorous, alternate, articulated. *Bracteae* scariosae, brownish white, at the articulations and base of the pedicels. *Germen* oblong, 5 to 8 tenths long. *Corolla* 8½ inches long, pale purplish blue; tube turbinate, shining; limb conic below, shining underneath at the base; segments patent, unguiculate; unguis canaliculate, whitish with lateral brownish olive veins; 8 outer segments recurvate, flattish; 3 inner segments at first erect, afterwards connivent. *Pollen* globose, opaque, some globules transparent at the margin. Allied to *I. squalens* in the structure of the germen, to *I. germanica* in the colour of the corolla.

19. *IRIS sambucina*. Germen hexagonum, tubo corollae brevius, pedicello longius. Caulis multiflorus, surculis longior. Corollae laciniae interiores obovatae, incurvatae. Rami biflori triflorique.—Germen hexagonal, shorter than the tube of the corolla, longer than the pedicle. Stem multiflorous, longer than the shoots. Inner segments of the corolla obovate, incurvate. Branches with 2 and 3 flowers. *Obs. 7453.* In the Oaks garden.—*Obs. 9887.* In a garden, where it begins to flower a few days later than *I. germanica*, continuing a few days longer. Nearly out of flower 27 June. In another year began to flower the same day

with *I. germanica* continuing some days longer.—*Linn. sp. i.* 55. Corolla blue; *a Willd. i.* 228; *a Boem. & Schult. i.* 469; *Vahl. enum. ii.* 128. Corolla blue.—*Moench. arb. i.* 128. Corolla blue.—*Willd. enum. i.* 63. *Hort. kew. ed. I. i.* 69; *ed. II. i.* 119. *Bot. mag. t.* 187. *Mill. Ph. dict. n.* 23. Corolla yellow with dark brown stripes.

*I. squalens* with pale purple standards. *Mill. Ph. dict. n.* 2.

*I. Boerh. ii.* 124. *n.* 10.

*I. latifolia major obsoleta.* *Clus. hist. i.* 224. No fig. In the gardens of Austria and Hungary.

*I. major latifolia VIII.* *Clus. hist. i.* 219. No fig. Stem  $1\frac{1}{2}$  foot long.

*I. germanica.* *Trag.* 703, not producing seeds, on a lofty grassy mountain not far from the castle of Valencia (Velda according to *Casp. Bauh. theatr.*) in Germany, *repr. in*

*I. nostras sativa.* *Cord. fol.* 132. *p.* 2. *t. fol.* 133. *p.* 1, outer fig. Capsule and seeds described.

*I. sylvestris.* *Cord. fol.* 133. *p.* 2. Root and leaves. Capsules described as *sextostriate* and seeds as round and cartilaginous.

*Stem terete, subcompressd, with 9 flowers. Leaves* contrary, lanceolato-ensate, slightly incurvate at the end, nervose, perennial; ribs elevated, with depressions between them so as to make the leaf appear almost sulcate, the ribs and depressions alternating with those of the opposit side. *Branches* very short. *Pedicles* very short. *Corolla* with a scent like that of the flowers of *Sambucus nigra*; 3 outer segments recurvate; laminae brownish purple, buffcoloured at the base with brown veins; 3 inner erect; ungues canaliculate, glabrous, with brown veins; laminae oval, sometimes emarginate, pale livid. *Stigmata* lanceolate, buffcoloured, bilabiate at the end; upper lip bipartite; segments attenuate, serrate at the outer margins. *Obs.* 7453. Not known to produce seeds in England.

*β inodora.* Flowers scentless. Laminae of the outer segments of the corolla brownish white with confluent purple lines. *Obs.* 9897.

*I. sambucina.* *Hort. kew. ed. II. i.* 119 *β*

*I. squalens*. *Linn. sp. i.* 50, corolla violet with blue and yellow; *a Reich. i.* 106; *a Willd. i.* 228, who has omitted an observation of Linnaeus; *a Roem. & Schult. i.* 450; *a Spreng. i.* 162; *hak.* 20, corolla with yellow brown and violet.—*Krock. i.* 59. Violet bluish with pale yellow.—*Horn. i.* 55. *Bluff & Fing. i.* 54. Violet with dirty yellow.—*Roth. enum. i.* 121; *gorn. i.* 17; *ii. pars. i.* 42. *Thunb. jap.* 83. In mountainous situations.—*Honck. i.* 33. *Link. enum. i.* 58. *Vahl. enum. i.* 129. *Moench. carb. i.* 328. *Hort. kew. ed. I. i.* 69. (*Mill. Ph. dict. n.* 2, with blue standards and purple falls, described as having a violet-coloured corolla, and an oblong germen turning to a threecornered capsule, is probably *I. germanica*.)

*I. Boerh. ii.* 124. *n.* 9.

*I. latifolia major variegata*. *Best. Bas. corn. ord.* 8. *fol.* 5. *f.* 3.

*I. germanica*. *Fuchs. c.* 110. 12mo 312.

*I. Camerarii*. *Park. parad.* 181. No fig.

*I. hortensis*. *Bauh. Caep. theatr.* 372.

Glaucous, roid. *Stem* erect, to 3 feet 8 inches long, terete, very slightly compressed, solid, glabrous, when the bloom rubbed off green. *Leaves* contrary, distichous, falcate, and falcato-lanceolate, nervose, sulcate, perennial, those of the stem  $1\frac{1}{2}$  foot long, those of the shoots somewhat shorter than the stem, to 1 inch 7 tenths broad; inner margin convex. *Branches* alternat, 2 and 3, erect, distichous, shorter than the stem, somewhat shorter than the internodia, biflorous and triflorous; terminal branch quadriflorous. *Peduncles* very short. *Bractees* 3 at the base of each branch, one at the base of the lower flowers, 2 at the base of the terminal flower, membranaceous at the margin, at length marcescent. *Flowers* 4 inches long. *Germen* trilocular, oblong, truncate at each end,  $\frac{1}{2}$  inch long, twice and thrice as long as the peduncle, shining, sexineate; sides with an obsolete dark green furrow; angles rounded. *Corolla* superior, infundibulate; tube succulent, green, shining, from  $1\frac{1}{2}$  to more than  $1\frac{1}{2}$  as long as the germen, trigonous, obpyramidal; limb sexpartite, patent, with a white fleshy

projecting rounded tooth at the commissures; segments  $2\frac{1}{2}$  to 3 inches long, 1 inch  $\frac{7}{10}$  broad, unguiculate, distinct, shining and greenish on the back below; 3 outer segments obovate, recurvate, 2 inches  $\frac{7}{10}$  long; unguis patent, canaliculate, revolute at the margin, greenish yellow and shining on the back; on the face whitish along the middle, strawcoloured at the sides with brown lines; laminae deflex, with the sides laterally reflex, nearly entire at the margin, whitish at the base purple above brownish and livid at the margin with dark purple dichotomous lines from the base to the margin; hairs of the bearded line filiform white below, orange-coloured above, rounded at the end; 3 inner segments erect, incurvate, sometimes connivent and incumbent, just shorter and narrower than the outer segments; unguis cuneate, canaliculate, compressed, tawny sulphur-coloured with short oblique brown lines, subhirsute on the inner side; laminae oval-obovate, concave and carinate at the base, convex and carinate above, undulate, with the sides laterally reflex, very thin, tremulous, semitransparent, faint purplish livid with very faint purple veins, yellowish at the base with brown veins, others in the same plant in warmer weather faint strawcoloured with a purplish tinge and others strawcoloured below, whitish above; margin entire and crenato-repandose. *Pollen* globose, opaque and transparent at the margin, of different sizes, the smaller globose oval and angular, 4 times smaller than the largest. *Style* somewhat shorter than the tube of the corolla. *Stigmata* oblongo-lanceolate, concave underneath, carinate on the face, straw-coloured with a bluish white stripe along the middle on each side of the keel, reaching to the end of the beard of the deflex segments; bilabiate at the end; upper lip bipartite; segments acute, irregularly serrate on the outer margin, patulous; lower lip very short, membranaceous, semitransparent, semicircular, retuse, erose, covered by the upper lip; face papillose; back glabrous. *Caprula* oblong, triquetrous, trilocular,  $1\frac{1}{2}$  inch long; sides depressed; valves elliptic. *Seeds* obovate, fulvous,  $\frac{3}{10}$  inch long, produced in the hot summer of 1926. Allied in colours to *I. variegata*.

## 52. VACHENDORFIA.

*Capsule* superior. *Petals* 6, unequal. *From Gaertn.* i. 52. t. 15 and *L.*

1. *VACHENDORFIA thyrsiflora*. *Folia* plicata quinquenervia glabra. *Panicula* coarctata.—*Leaves* plicate quinquenervose glabrous. *Panicle* contracted. *Obs.* 5301. In Perryhill nursery. 14 July.—*Linn. sp.* i. 59; *a Willd.* i. 248; *a Roem. & Schult.* i. 485; *a Spreng.* i. 169. *Vahl. enum.* ii. 163. *Willd. enum.* i. 67. *Link. enum.* i. 55. *Thunb. prodr.* 12; *cap. ed.* I. i. 306; *ed. II.* i. 80. *Hort. kew. ed. I.* i. 75; *ed. II.* i. 106. *Gaertn.* i. 52. t. 15.

*Leaves* lineari-lanceolate, 7 tenths broad. *Scapus* pubescent above. *Panicle* pubescent, 4 inches long; branches patulous, biflorous. *Corollae* pubescent,  $\frac{1}{2}$  inch long.

## 53. XYRIS.

*Capsula* supera, unilocularis, trivalvis. *Calyx* triphyllus. *Petala* 3, unguiculata. *Nectararia* 3, penicillata. *Stylus* trifidus.—*Capsule* superior unilocular trivalve. *Calyx* triphyllous. *Petals* 3, unguiculate. *Nectararia* 3, penicillate. *Style* trifid. *Obs.* 4317. The account of the fr. from *Gaertn.* i. 52. t. 15. *Brown, Rob.* i. 255. *Roxb. ind.* i. 183. *L.*

The moniliform threads of the nectararia analogous to those of the filaments of *Tradescantia*.

1. *XYRIS carolineana*. *Scapus* anceps. *Capitulum* ovale. *Phyllum* exterius obtusum.—*Scapus* twoedgd. *Capitulum* oval. *Outer phyllum* obtuse. *Obs.* 4317. Specimen gathered by Dr. Cutler in New England.—*Vahl. enum.* ii. 206. *Walt.* 69. *Pursh.* i. 33. *Nutt.* i. 30. *Linn. a Roem. & Schult.* i. 651; *a Spreng.* i. 183. *X. Clayt. & Gron. ed. I.* 11; *ed. II.* 8. *Cutl. in am. ac.* i. 406.  
*Gramen* junceum brasilianum capite ovali squamoso florido. *Mor. & Bob.* iii. 229. s. 8. t. 9. f. 28. From Virginia.  
*Gladiolo* lacustri accedens. *Pluk. alm.* 170; *phyt. t.* 416. f. 4.

(X. Jupicai. *Michaux* i. 23, and *Big.* 17 are characterised as having leaves rather obtuse.)

Glabrous. *Leaves* lanceolato-linear, acute, to 6 inches long, to a tenth broad. *Scapi*  $\frac{1}{2}$  to 1 foot long, one third of a tenth broad, twice as long as the leaves. *Calyx* triphyllous, permanent, membranaceous, yellowish; outer phyllum oval concave, 2 tenths long, rigid, fulvous, membranaceous towards the margin, with an opaque disc at the upper end; disc ovate acute whitish olive green; inner phylla elliptic membranaceous, thrice as narrow, somewhat shorter, canaliculate, carinate, costate; carina fimbriate above. *Petals* 3, somewhat more than twice as long as the calyx, unguiculate; ungues dilatate trinervose somewhat longer than the calyx; laminae oval. *Stamina* 3, inserted into the end of the ungues. *Filaments* shorter than the antherae. *Antherae* bilocular. *Nectaria* 3, alternating with the petals, unguiculate; ungues filiform below, dilatate above; heads laciniate filamentose; filaments moniliform, composed of microscopic granules. *Pistil* somewhat shorter than the petals. *Germen* clavato-obovate. *Style* filiform, below trinervose, trifid to the middle. *Stigmata* capitate.





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